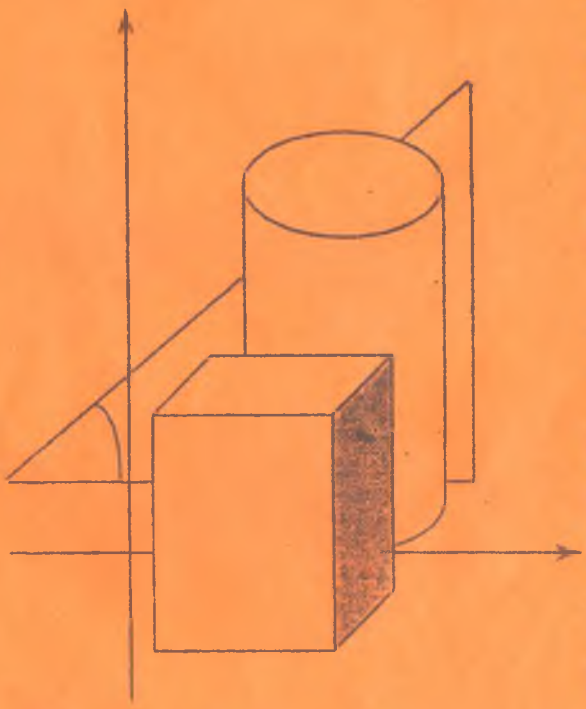
MATEMATIKA

Mavzulashtirilgan testlar to'plami



TO'LDIRILGAN NASHR
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006

I – QISM

BARCHA TESTLAR JAVOBLARI BILAN

For the ones who sacrifice their lives for the salvation of the mankind
And the ones who are willing to drop tears to make the others smile...

I-BOB. KIRISH.

1-§. Natural va butun sonlar ustida arifmetik amallar.

1. $12-6:3+2\cdot4$ ning qiymatini toping. (96-03-01)
A) 16 B)10 C) 18 D)48 E) $4\frac{2}{3}$

2. $-8+6:(-2)-2\cdot(-11)$ ni hisoblang. (96-03-06)
A) 23 B)11 C) – 11 D)– 10 E)143

3. $15-9:3+4\cdot3$ ning qiymatini toping. (96-11-01)
A)24 B)18 C)48 D)6 E) $7\frac{1}{3}$

4. $-8-6:(-2)-2\cdot(-11)$ ni hisoblang. (96-11-06)
A)17 B)–55 C)55 D)77 E)–77

5. $18-12.2+5.3$ ning qiymatini toping. (96-12-01)
A) $15\frac{1}{2}$ B)51 C)24 D)54 E)27

6. $8+6:(-2)-2\cdot(-11)$ ni hisoblang. (96-12-06)
A)99 B)15 C)33 D)–52 E)27

7. $1-3+5-7+9-11+\ldots+97-99$ ni hisoblang. (97-03-02)
A)–46 B) 48 C)–50 D) 52 E)–54

8. $4-7+8-11+12-15+\ldots+96-99$ yig'indini hisoblang. (01-01-02)
A)– 75 B)– 80 C)– 72 D)– 63 E)– 60

9. Quyidagi ifodalardan qaysi biri –1 ga teng? (96-06-09)
A) $\left((-1)^2\right)^3$ B) $\left(-(-1)^2\right)^3$ C) $\left((-1)^3\right)^2$
D) $\left(-(-1)^3\right)^3$ E) $-\left((-1)^5\right)^3$

10. Quyidagi ifodalardan qaysi biri 1 ga teng? (97-02-09)
A) $\left(-(-1)^2\right)^3$ B) $\left((-1)^3\right)^5$ C) $-\left((-1)^5\right)^4$
D) $\left((-1)^3\right)^4$ E) $-\left((-1)^2\right)^3$

11. Quyidagilardan qaysi biri -1 ga teng? (97-08-06)
A) $\left((-1)^3\right)^2$ B) $\left(-(-1)^3\right)^6$ C) $\left(-(-1)^2\right)^4$
D) $-\left((-1)^3\right)^4$ E) $\left((-1)^2\right)^4$

12. Quyidagi ifodalardan qaysi biri 1 ga teng? (97-12-07)
A) $\left(-(-1)^2\right)^3$ B) $\left((-1)^3\right)^3$ C) $\left(-(-1)^4\right)^3$
D) $\left((-1)^5\right)^3$ E) $\left((-1)^3\right)^4$

13. –5.2 bilan 10,4 orasida nechta butun son bor? (96-
A)16 B)10 C)15 D)12 E)11

14. $249\cdot250-250\cdot251+251\cdot252-252\cdot253+253\cdot254-254\cdot255$ ni hisoblang. (02-12-33)
A)–1514 B)–1516 C)–1512 D)–1518 E)–1510

15. $26\cdot25-25\cdot24+24\cdot23-23\cdot22-12\cdot8$ ning qiymatini toping. (96-01-01)
A)106 B)1 C)54 D)8 E)0

16. $21\cdot18-19\cdot18+18\cdot17-17\cdot16+16\cdot15-15\cdot14$ ni hisoblang. (96-07-01)
A)50 B)100 C)98 D)21 E)110

17. $18\cdot36-16\cdot36+24\cdot27-25\cdot24-21\cdot5$ ning qiymatini toping. (96-09-52)
A)45 B)1 C)0 D)15 E)115

18. $21\cdot13+24\cdot13+45\cdot12+25\cdot44-89\cdot24$ ning qiymatini toping. (96-10-01)
A)79 B)126 C)89 D)0 E)1

19. $36\cdot24-33\cdot24+17\cdot11-14\cdot11+18\cdot16-15\cdot16$ ni hisoblang. (97-07-01)
A)166 B)155 C)180 D)235 E)153

20. $27\cdot23-24\cdot23+21\cdot19-18\cdot19+17\cdot11-14\cdot11$ ni hisoblang. (97-10-01)
A)165 B)159 C)143 D)203 E)189

21. $139\cdot15+18\cdot139+15\cdot261+18\cdot261$ ni hisoblang. (00-05-04)
A)13200 B)14500 C)15100 D)16200 E)17500

22. $27048\cdot27044-27047\cdot27043$ ni hisoblang. (98-03-09)
A)60491 B)58051 C)57091 D)54091 E)56091

23. $45815\cdot45818-45814\cdot45816$ ni hisoblang. (98-10-57)
A)137446 B)137447 C)241584 D)241586 E)241585

24. $100^2-99^2+98^2-97^2+\ldots+2^2-1$ yig'indini hisoblang. (01-07-02)
A)10100 B)10000 C)5000 D)5100 E)5050

25. $(202^2-54^2+256\cdot352):(4^4\cdot10^2)$ ni hisoblang. (01-06-06)
A)4 B)1 C)2 D)5 E)10

26. $889^3+3000\cdot889\cdot111+111^3+889+111$ ni hisoblang. (99-07-02)
A)10001000 B)1001000 C)1001001000 D)1000001000 E)1001011000

27. $1\cdot4+2\cdot8+3\cdot12+\ldots+20\cdot80$ yig'indida har bir qo'shiluvchining ikkkinchi ko'paytiruvchisi birtadan kamaytirilsa, bu yig'indi qanchaga kamayadi? (02-06-03)
A)60 B)120 C)210 D)375 E)465

28. $1\cdot4+2\cdot8+3\cdot12+\ldots+30\cdot120$ yig'indida har bir qo'shiluvchining ikkkinchi ko'paytiruvchisi birtadan kamaytirilsa, bu yig'indi qanchaga kamayadi? (03-07-05)
A)60 B)120 C)210 D)375 E)465

29. $1\cdot4+2\cdot6+3\cdot8+\ldots+10\cdot22$ yig'indining har bir hadidagi ikkinchi ko'paytuvchi 3 ta kamaytirilsa, yig'indi qanchaga kamayadi? (03-10-02)
A)165 B)30 C)180 D)90 E)330

30. Balandligi 10 m bo'lgan simyog'ochga shilliqurt ko'tarilyapti. Shilliqurt kunduzi 5 m ko'tariladi. kechasi esa 4 m pastga tushadi. Necha kundan keyin shilliqurt simyog'ochning uchiga chiqadi? (99-04-01)
A)10 B)9 C)6 D)5 E)7

31. Agar soat 1 da bir marta, 2 da ikki marta, ... va 12 da o'n ikki marta zang ursa, bir sutkada necha marta zang uradi? 01-01-26
A)72 B)78 C)108 D)144 E)156

32. $17\cdot11-14\cdot11+27\cdot23-24\cdot23+21\cdot19-18\cdot19$ ni hisoblang. 2006
A)159 B)165 C)203 D)143

33. $18\cdot13-15\cdot13+21\cdot17-18\cdot17+17\cdot15-15\cdot14$ ni hisoblang. 2006
A)135 B)125 C)180 D)205

2-§. Oddiy kasrlar ustida arifmetik amallar.

1. $-\frac{3}{15}+\frac{1}{5}-\frac{1}{3}$ ning qiymatini toping. 96-03-09
A) $-\frac{19}{30}$ B) $-\frac{1}{3}$ C) $\frac{19}{30}$ D) $\frac{1}{3}$ E) $\frac{3}{13}$

2. $-\frac{1}{2}-\frac{1}{3}$ ni hisoblang. 96-03-12
A) $\frac{5}{6}$ B) $-\frac{2}{5}$ C) $\frac{2}{5}$ D) $-\frac{5}{6}$ E) $\frac{1}{5}$

3. $\frac{1}{2}-\frac{2}{3}$ ayirmani toping. 96-03-13
A) $\frac{1}{6}$ B)1 C) $-\frac{1}{3}$ D)-1 E) $-\frac{1}{6}$

4. $-\frac{3}{15}+\frac{1}{5}+\frac{1}{3}$ ning qiymatini toping. 96-11-09
A) $-\frac{1}{3}$ B) $\frac{2}{15}$ C) $\frac{7}{15}$ D) $\frac{1}{3}$ E) $\frac{4}{15}$

5. $-\frac{1}{4}-\frac{1}{5}$ ni hisoblang. 96-11-13
A) $-\frac{9}{20}$ B) $-\frac{2}{9}$ C) $-\frac{1}{10}$ D) $\frac{2}{9}$ E) $\frac{9}{20}$

6. $\frac{1}{4}-\frac{4}{5}$ ayirmani toping. 96-11-14
A) $-\frac{11}{20}$ B)-1 C) $-\frac{7}{20}$ D) $\frac{13}{20}$ E) $\frac{3}{20}$

7. $\frac{3}{15}-\frac{1}{5}-\frac{1}{3}$ ning qiymatini toping. 96-12-09
A) $\frac{1}{3}$ B) $-\frac{3}{10}$ C) $\frac{3}{10}$ D) $\frac{1}{7}$ E) $-\frac{1}{3}$

8. $-\frac{1}{3}-\frac{1}{4}$ ni hisoblang. 96-12-13
A) $-\frac{2}{7}$ B) $-\frac{7}{12}$ C) $\frac{1}{6}$ D) $-\frac{1}{6}$ E) $\frac{7}{12}$

9. $\frac{1}{3}-\frac{3}{4}$ ayirmani toping. 96-12-14
A) $-\frac{1}{6}$ B) $-\frac{5}{12}$ C) $\frac{1}{6}$ D) $\frac{5}{12}$ E)-1

10. Amalni bajaring: $1\frac{3}{5}-3\frac{1}{5}$.
A) $-1\frac{2}{5}$ B) $1\frac{2}{5}$ C) $1\frac{3}{5}$ D) $2\frac{2}{5}$ E) $-1\frac{3}{5}$

11. Amalni bajaring: $3\frac{4}{7}-5\frac{2}{7}$
A) $-1\frac{5}{7}$ B) $1\frac{4}{7}$ C) $1\frac{5}{7}$ D) $\frac{4}{7}$ E) $1\frac{2}{7}$

12. $\frac{1}{3}\cdot(-\frac{2}{7}):(-\frac{5}{42})$ ni hisoblang.
A) $-\frac{4}{5}$ B) $\frac{5}{441}$ C) $\frac{10}{882}$ D) $-\frac{5}{441}$ E) $\frac{4}{5}$

13. $-\frac{1}{3}\cdot(-\frac{2}{7}):\frac{5}{42}$ ni hisoblang.
A) $\frac{5}{441}$ B) $\frac{4}{5}$ C) $-\frac{5}{441}$ D) $-\frac{4}{5}$ E) $\frac{10}{882}$

14. $\frac{3}{4}\cdot1\frac{1}{7}:\frac{2}{15}\cdot12\frac{1}{4}:7\frac{1}{2}$ ni hisoblang.
A) $10\frac{1}{2}$ B)11 C) $9\frac{1}{4}$ D) $7\frac{1}{2}$ E) $5\frac{1}{7}$

15. $\frac{42}{95}\cdot1\frac{3}{14}:\frac{3}{5}:2\cdot4\frac{3}{4}$ ni hisoblang.
A) $\frac{13}{8}$ B) $1\frac{3}{8}$ C) $2\frac{1}{8}$ D) $1\frac{5}{7}$ E) $2\frac{3}{5}$

16. $1\frac{8}{17}\cdot3\frac{2}{5}:\frac{11}{12}\cdot2\frac{1}{5}:\frac{4}{9}$ ni hisoblang.
A)2,7 B) $24\frac{3}{17}$ C)27 D) $29\frac{1}{9}$ E) $7\frac{1}{3}$

17. $3\frac{1}{3}\cdot2\frac{1}{4}\cdot(-\frac{1}{2})\cdot\frac{4}{5}$ ni hisoblang.
A)3 B)-3 C)2,5 D)-2,5 E)-4

18. $243:(9:11)$ ni hisoblang.
A)27 B) $2\frac{5}{11}$ C) $\frac{11}{27}$ D) $198\frac{9}{11}$ E)297

19. $\frac{(20-48)(-5-20)}{-5}$ kasrning qiymati 40 dan qanchaga kam?
A)160 B)140 C)180 D)200 E)120

20. $2\frac{2}{3}:1\frac{1}{7}\cdot3\frac{3}{7}\cdot(-\frac{1}{4})$ ni hisoblang.
A)4 B)3 C)-2 D) $\frac{2}{7}$ E) $\frac{7}{4}$

21. $(-2\frac{1}{2})^3$ ni hisoblang.
A) $8\frac{1}{8}$ B) $2\frac{1}{8}$ C) $31\frac{1}{4}$ D) $-8\frac{1}{8}$ E) $-15\frac{5}{8}$

22. $(-1\frac{1}{3})^3$ ni hisoblang. 96-11-15

A) $-2\frac{10}{27}$ B) $2\frac{10}{27}$ C) $1\frac{1}{27}$ D) $-\frac{1}{27}$ E) $-1\frac{1}{27}$

23. $(-1\frac{1}{2})^3$ ni hisoblang. 96-12-15

A) $6\frac{3}{4}$ B) $1\frac{1}{8}$ C) $-3\frac{3}{8}$ D) $-1\frac{1}{8}$ E) $-2\frac{1}{4}$

24. $4\frac{1}{2}\cdot 6^{-2}+(\frac{2}{5})^{-3}-(\frac{2}{5})^{0}$ ni hisoblang. 97-03-11

A) $15\frac{3}{4}$ B) $15\frac{1}{8}$ C) $11\frac{3}{5}$ D) $6\frac{3}{8}$ E) $14\frac{3}{4}$

25. $2\cdot 4^{-2}+(\frac{2}{3})^{-3}-(\frac{1}{5})^{0}$ ni hisoblang. 97-07-11

A) $3\frac{1}{2}$ B) $4\frac{2}{3}$ C) 2 D) 2,5 E) 0

26. $5\frac{5}{7}:2\frac{2}{5}\cdot 5\frac{1}{4}:1\frac{1}{6}\cdot\frac{2}{3}$ ni hisoblang. 96-07-06

A) $7\frac{1}{7}$ B) $8\frac{1}{7}$ C) $6\frac{6}{7}$ D) $5\frac{5}{7}$ E) $4\frac{5}{6}$

27. $6\frac{3}{4}\cdot 5\frac{1}{4}-4\frac{5}{8}\cdot 5\frac{3}{8}$ ni hisoblang. 99-04-02

A) $10\frac{19}{64}$ B) $11\frac{27}{64}$ C) $11\frac{9}{64}$ D) $10\frac{39}{64}$ E) $10\frac{37}{64}$

28. $7\frac{5}{13}\cdot 2-1\frac{2}{5}\cdot 6+4\cdot 2\frac{4}{13}-3\cdot 1\frac{1}{5}$ ni hisoblang. 99-04-11

A) $11\frac{2}{5}$ B) 12 C) 13,5 D) $11\frac{8}{13}$ E) 14

29. $5\frac{4}{9}\cdot 3\frac{4}{7}+1\frac{15}{19}:\frac{7}{25}-1\frac{2}{3}$ ni hisoblang. 01-08-03

A) $23\frac{2}{3}$ B) $23\frac{1}{3}$ C) $22\frac{2}{3}$ D) $24\frac{1}{3}$ E) $22\frac{1}{3}$

30. $(7\frac{1}{3}-6\frac{7}{8}):\frac{3}{4}+8\frac{8}{9}\cdot 2\frac{1}{80}$ ni hisoblang. 96-07-09

A) $17\frac{2}{3}$ B) $18\frac{1}{2}$ C) $21\frac{1}{2}$ D) $16\frac{1}{3}$ E) $17\frac{1}{2}$

31. $1\frac{1}{4}+\frac{5}{12}:(\frac{1}{3}\cdot 2\frac{1}{2}-\frac{7}{8})$ ni hisoblang. 97-01-03

A) $11\frac{1}{4}$ B) $-1\frac{1}{4}$ C) $9\frac{1}{4}$ D) $-8\frac{3}{4}$ E) $-9\frac{1}{4}$

32. $(\frac{5}{9}-1\frac{1}{6}\cdot\frac{1}{2}):\frac{5}{9}+\frac{1}{3}$ ni hisoblang. 97-06-03

A) $\frac{3}{20}$ B) $\frac{17}{60}$ C) $\frac{7}{30}$ D) $-\frac{7}{60}$ E) $-\frac{11}{30}$

33. $(4\frac{1}{10}-3\frac{4}{15})\cdot\frac{5}{6}-4\frac{1}{10}:1\frac{1}{5}$ ni hisoblang. 97-07-09

A) $3\frac{9}{5}$ B) $4\frac{1}{9}$ C) $5\frac{2}{3}$ D) $2\frac{3}{5}$ E) $3\frac{7}{9}$

34. $(12\frac{1}{9}-10\frac{2}{5}):38\frac{1}{2}+2\frac{8}{9}\cdot 18$ ni hisoblang. 97-10-09

A) $24\frac{1}{15}$ B) $32\frac{7}{45}$ C) $38\frac{3}{5}$ D) 47 E) $52\frac{2}{45}$

35. $(3\frac{17}{36}-5\frac{7}{12}):\frac{2}{9}-\frac{3}{26}\cdot 4\frac{1}{3}$ ni hisoblang. 97-11-03

A) -9 B) $8\frac{1}{2}$ C) 9 D) -10 E) $-9\frac{1}{2}$

36. $(1992\frac{3}{5}-1990\frac{2}{3})\cdot 1\frac{1}{29}$ ni hisoblang. 98-06-08

A) $-2\frac{14}{435}$ B) $\frac{14}{435}$ C) 2 D) -2 E) $2\frac{1}{58}$

37. $(4\frac{5}{8}\cdot 4\frac{1}{5}\cdot\frac{8}{37}-3\frac{3}{5})^{-1}$ ni hisoblang. 98-10-09

A) $1\frac{3}{5}$ B) $1\frac{2}{5}$ C) $1\frac{3}{4}$ D) $1\frac{2}{3}$ E) $1\frac{1}{3}$

38. $(1997\frac{3}{5}-1996\frac{1}{6})\cdot 1\frac{1}{29}$ ni hisoblang. 98-11-58

A) $\frac{13}{29}$ B) $2\frac{1}{29}$ C) $1\frac{13}{29}$ D) $3\frac{1}{29}$ E) $1\frac{14}{29}$

39. $(2\frac{1}{2}-1\frac{3}{8})\cdot(3\frac{1}{2}-\frac{3}{6})\cdot 1\frac{1}{3}$ ni hisoblang. 98-12-11

A) 4 B) 8 C) $4\frac{1}{2}$ D) 12 E) 3

40. $\frac{3375-1331}{4}:511-1$ ni hisoblang. 00-08-51

A) -1 B) 0 C) 1 D) 25 E) -25

41. $5\frac{4}{19}\cdot 3\frac{4}{7}+1\frac{15}{19}:\frac{7}{25}-1\frac{2}{3}$ ni hisoblang. 01-08-03

A) $23\frac{2}{3}$ B) $23\frac{1}{3}$ C) $22\frac{2}{3}$ D) $24\frac{1}{3}$ E) $22\frac{1}{3}$

42. $\dfrac{12\frac{4}{5}\cdot 3{,}75-4\frac{4}{11}\cdot 4{,}125}{2\frac{2}{7}:\frac{4}{35}}$ ni hisoblang. 03-03-04

A) 0,5 B) 1,5 C) 0,6 D) 0,3 E) 0,2

43. $\left(6\frac{1}{2}-8\frac{3}{4}\right):\frac{1}{8}+11\frac{3}{7}$ ni hisoblang. 03-11-54

A) $-7\frac{3}{7}$ B) $6\frac{3}{7}$ C) $-6\frac{4}{7}$ D) $-7\frac{5}{7}$ E) $-6\frac{5}{7}$

44. $10-2\frac{1}{2}:3\frac{3}{4}+\left(2\frac{1}{2}-1\frac{1}{3}\right)\cdot 6$ ni hisoblang. 03-11-58

A) $16\frac{2}{3}$ B) $17\frac{1}{3}$ C) $15\frac{2}{3}$ D) $16\frac{1}{3}$ E) 17

45. $\dfrac{\left(\frac{3}{2}\right)^{-3}\cdot(3{,}375)^{-1}}{(2{,}25)^{-2}\cdot\left(\frac{2}{3}\right)^{-1}}$ ni hisoblang. 01-08-09

A) $2\frac{1}{4}$ B) $\frac{4}{9}$ C) $\frac{8}{27}$ D) $3\frac{3}{8}$ E) $1\frac{1}{2}$

46. $(\frac{1}{7})^0+6\cdot2^{-3}+(\frac{2}{5})^{-2}$ ni hisoblang. 96-07-11

A)8 B) $7\frac{1}{7}$ C)7 D) $-47\frac{4}{25}$ E)–7

47. Agar $a=4^{-1}$; $b=4^{2a}$ va $c=4^b$ bo'lsa, $\dfrac{ac}{b}$ ifodaning qiymati nechaga teng bo'ladi? 02-03-10

A)2 B)4 C)8 D)1 E)0,5

48. Agar $3^{a-3}=11$ bo'lsa, 3^{5-a} ning qiymatini toping. 02-03-17

A) $\frac{9}{11}$ B)99 C) $\frac{3}{16}$ D) $\frac{11}{9}$ E) $\frac{27}{11}$

49. $(1-\frac{1}{2})(1-\frac{1}{3})(1-\frac{1}{4})(1-\frac{1}{5})(1-\frac{1}{6})$ ko'paytmani hisoblang. 00-05-09

A) $\frac{1}{3}$ B) $\frac{1}{4}$ C) $\frac{1}{5}$ D) $\frac{1}{6}$ E) $\frac{1}{7}$

50. $\dfrac{1}{1\cdot2}+\dfrac{1}{2\cdot3}+\dfrac{1}{3\cdot4}+\ldots+\dfrac{1}{999\cdot1000}$ ni hisoblang. 98-12-62

A)0, 750 B)1, 125 C)0, 998 D)1, 450 E) 0, 999

51. $\dfrac{1}{1\cdot2}+\dfrac{1}{2\cdot3}+\dfrac{1}{3\cdot4}+\ldots+\dfrac{1}{99\cdot100}$ yig'indini hisoblang. 00-08-57

A) $\frac{1}{9}$ B) $\frac{1}{10}$ C) $\frac{1}{100}$ D) $\frac{1}{99}$ E) $\frac{99}{100}$

52 $1+\dfrac{1}{10\cdot11}+\dfrac{1}{11\cdot12}+\dfrac{1}{12\cdot13}+\dfrac{1}{13\cdot14}+$ $+\dfrac{1}{14\cdot15}+\dfrac{1}{15\cdot16}$ ni hisoblang. 03-08-29

A) $1\frac{3}{80}$ B)1,16 C) $1\frac{3}{40}$ D) $1\frac{7}{80}$ E) $1\frac{13}{80}$

53. $\dfrac{1}{12}+\dfrac{1}{20}+\dfrac{1}{30}+\dfrac{1}{42}+\ldots+\dfrac{1}{182}$ ni hisoblang. 99-05-01

A) $\frac{11}{42}$ B) $\frac{10}{33}$ C) $\frac{1}{4}$ D) $\frac{12}{35}$ E) $\frac{15}{56}$

54 $\dfrac{1}{15}+\dfrac{1}{35}+\dfrac{1}{63}+\dfrac{1}{99}+\dfrac{1}{143}+\dfrac{1}{195}$ ni hisoblang. 00-02-04

A) $\frac{4}{15}$ B) $\frac{7}{15}$ C) $\frac{17}{45}$ D) $\frac{17}{15}$ E) $\frac{2}{15}$

55. $\dfrac{1}{1\cdot3}+\dfrac{1}{3\cdot5}+\dfrac{1}{5\cdot7}+\cdots+\dfrac{1}{13\cdot15}$ ni hisoblang. 00-03-15

A) $\frac{11}{15}$ B) $\frac{7}{30}$ C) $\frac{8}{15}$ D) $\frac{7}{15}$ E) $\frac{2}{5}$

56. $\dfrac{1}{2\cdot5}+\dfrac{1}{5\cdot8}+\dfrac{1}{8\cdot11}+\dfrac{1}{11\cdot14}+\dfrac{1}{14\cdot17}$ ni hisoblang. 00-05-15

A) $\frac{15}{34}$ B) $\frac{5}{17}$ C) $\frac{5}{34}$ D) $\frac{16}{173}$ E) $\frac{15}{136}$

57. $\dfrac{1}{15}+\dfrac{1}{35}+\dfrac{1}{63}+\dfrac{1}{99}+\ldots+\dfrac{1}{255}$ ni hisoblang. 00-05-13

A) $\frac{7}{51}$ B) $\frac{2}{15}$ C) $\frac{2}{25}$ D) $\frac{3}{35}$ E) $\frac{7}{40}$

58. $\dfrac{1}{8}+\dfrac{1}{24}+\dfrac{1}{48}+\dfrac{1}{80}$ yig'indini hisoblang. 03-01-09

A)0,1 B)0,2 C)0,4 D)0,6 E)0,8

59. $\dfrac{2}{5\cdot7}+\dfrac{2}{7\cdot9}+\dfrac{2}{9\cdot11}+\ldots+\dfrac{2}{73\cdot75}$ ni hisoblang. 03-07-43

A) $\frac{16}{75}$ B) $\frac{28}{75}$ C) $\frac{1}{5}$ D) $\frac{14}{75}$ E) $\frac{2}{5}$

60. $(1-\dfrac{1}{2^2})(1-\dfrac{1}{3^2})\cdot\ldots\cdot(1-\dfrac{1}{100^2})$ ni hisoblang. 96-03-66

A) $\frac{8751}{9900}$ B) $\frac{143}{200}$ C) $\frac{441}{600}$ D) $\frac{101}{200}$ E) $\frac{151}{300}$

61. $(1-\dfrac{1}{5^2})(1-\dfrac{1}{6^2})\cdot\ldots\cdot(1-\dfrac{1}{103^2})$ ni hisoblang. 96-09-06

A) $\frac{64}{103}$ B) $\frac{67}{103}$ C) $\frac{69}{103}$ D) $\frac{415}{515}$ E) $\frac{416}{515}$

62. $(1-\dfrac{1}{3^2})(1-\dfrac{1}{4^2})\cdot\ldots\cdot(1-\dfrac{1}{101^2})$ ni hisoblang. 96-12-64

A) $\frac{157}{303}$ B) $\frac{142}{303}$ C) $\frac{65}{101}$ D) $\frac{64}{101}$ E) $\frac{68}{101}$

63. $(1-\dfrac{1}{4^2})(1-\dfrac{1}{5^2})\cdot\ldots\cdot(1-\dfrac{1}{102^2})$ ni hisoblang. 96-13-66

A) $\frac{251}{408}$ B) $\frac{331}{408}$ C) $\frac{71}{102}$ D) $\frac{103}{136}$ E) $\frac{111}{136}$

64. $\dfrac{1000^3+3\cdot1000\cdot995\cdot1995+995^3}{1000^2+2\cdot1000\cdot995+995^2}$ ni hisoblang. 97-09-80

A)1995 B)195 C)995 D)2195 E)895

65. $\left(1-\dfrac{1}{4}\right)\left(1-\dfrac{1}{9}\right)\left(1-\dfrac{1}{16}\right)\cdot\ldots\cdot\left(1-\dfrac{1}{2000^2}\right)$ ko'paytmaning qiymatini hisoblang. 03-02-33

A) $\frac{1999}{2000}$ B) $\frac{10}{1999}$ C) $\frac{2001}{2000}$ D) $\frac{1999}{4000}$ E) $\frac{2001}{4000}$

66. $\frac{488\cdot475-462}{244+475\cdot243}$ ni hisoblang. 98-07-02

A)3 B)1 C)$\frac{1}{2}$ D)2 E)$1\frac{1}{2}$

67. $\frac{244\cdot395-151}{244+395\cdot243}$ ni hisoblang. 98-12-02

A)1 B)2 C)3 D)$1\frac{1}{2}$ E)$\frac{1}{2}$

68. $\frac{9}{11}$ va 1 sonlari orasida maxraji 33 ga teng bo'lgan nechta kasr son bor? 96-01-08

A)2 B)1 C)5 D)6 E)4

69. $\frac{3}{4}$ va $\frac{8}{9}$ sonlari orasida maxraji 36 ga teng bo'lgan nechta kasr son bor? 96-09-58

A)1 B)2 C)3 D)4 E)5

70. $\frac{2}{3}$ va $\frac{5}{6}$ sonlari orasida maxraji 30 ga teng bo'lgan nechta kasr son bor? 96-10-08

A)1 B)2 C)4 D)5 E)3

71. [1; 3] oraliqdagi maxraji 3 ga teng bo'lgan barcha qisqarmaydigan kasrlarning yig'indisini toping. 99-09-21

A)$8\frac{1}{3}$ B)$8\frac{2}{3}$ C)$7\frac{1}{3}$ D)9 E)8

72. Maxraji 27 ga teng, $\frac{2}{3}$ dan katta va 1 dan kichik qisqarmas kasrlar nechta? 01-07-05

A)4 B)5 C)6 D)7 E)8

73. Maxraji 27 ga teng, $\frac{2}{3}$ dan katta va 1 dan kichik, kasrlar nechta? 01-07-05

A)4 B)5 C)6 D)7 E)8

74. Agar $\frac{29}{31}+\frac{38}{41}+\frac{47}{51}=a$ bo'lsa, $\frac{2}{31}+\frac{3}{41}+\frac{4}{51}$ quyidagilardan qaysi biriga teng. 03-06-05

A)$3-a$ B)$4-a$ C)$5-a$ D)$3-\frac{a}{2}$ E)$4-\frac{a}{2}$

75. Agar $\frac{29}{31}+\frac{38}{41}+\frac{47}{51}+\frac{56}{61}=a$ bo'lsa, $\frac{2}{31}+\frac{3}{41}+\frac{4}{51}+\frac{5}{61}$ quyidagilardan qaysi biriga teng. 03-07-08

A)$3-a$ B)$4-a$ C)$5-a$ D)$3-\frac{a}{2}$ E)$4-\frac{a}{2}$

76. $\frac{11}{25}$ va $4\frac{6}{11}$ sonlariga teskari sonlar ko'paytmasi nechaga teng? 00-02-06

A)$\frac{1}{2}$ B)1 C)$\frac{3}{4}$ D)2 E)$\frac{1}{3}$

77. Agar kasrning surati $6\frac{1}{3}$ marta kamaytirilsa, mahraji esa $4\frac{1}{2}$ marta orttirilsa, u qanday o'zgaradi? 99-04-06

A)$1\frac{11}{27}$ marta ortadi

B)$1\frac{11}{27}$ marta kamayadi

C)$28\frac{1}{2}$ marta ortadi

D)$28\frac{1}{2}$ marta kamayadi

E)$\frac{27}{32}$ marta kamayadi

78. $12\cdot3^{-3}+(\frac{3}{5})^{-2}-(\frac{1}{2})^{0}$ ni hisoblang. 97-10-11

A)2 B)$2\frac{2}{9}$ C)$4\frac{1}{3}$ D)$3\frac{2}{9}$ E)0

79. $\frac{2}{1+\frac{1}{1+2^{-1}}}-\frac{2}{1+\frac{1}{1-2^{-1}}}$ ni hisoblang. 99-07-14

A)$\frac{7}{15}$ B)$\frac{1}{2}$ C)$\frac{11}{18}$ D)$\frac{8}{15}$ E)$\frac{1}{3}$

80. $\frac{1}{1-\frac{1}{1-2^{-1}}}+\frac{1}{1+\frac{1}{1+2^{-1}}}$ ni hisoblang. 98-05-12

A)$\frac{2}{5}$ B)$\frac{2}{3}$ C)$-\frac{2}{5}$ D)$\frac{1}{2}$ E)$-\frac{4}{5}$

81. Agar $\frac{38}{41}+\frac{47}{51}=a$ bo'lsa, $\frac{3}{41}+\frac{4}{51}$ quyidagilardan qaysi biriga teng. 03-06-05

A) $4-a$ B) $3-a$ C) $3-\frac{a}{2}$ D) $2-a$

82. 1,25 ga teskari sonni toping. 2006

A)8 B)-0,8 C)0,8 D)-1,25

83. 8 ga teskari sonni toping. 2006

A)0,125 B)-0,8 C)1,25 D)-1,25

3-§. O'nli kasrlar ustida arifmetik amallar. Sonning standart shakli.

1. 2,5 – 4,3 ga teskari sonni toping. 99-04-07

A)0,8 B)1,8 C)$-\frac{5}{9}$ D)$-1\frac{1}{4}$ E)$\frac{5}{9}$

2. 0,8 soniga teskari sonni toping 98-09-57

A) 0,8 B)8 C)$-\frac{5}{4}$ D)1,25 E)0,2

3. 0,8 ga teskari bo'lgan songa qarama-qarshi sonni toping. 03-01-36

A)-0,8 B)1,25 C)-1,25 D)1,2 E)1,2

4. $17,556 : 5,7 < y < 31,465 : 3,5$ tengsizlik nechta natural yechimga ega? 99-08-79
A)1 B)2 C)4 D)5 E)6

5. 0,6 ga teskari sonni toping. 96-01-07
A)–0,6 B)$1\frac{2}{3}$ C)0,4 D)–6 E)$\frac{3}{6}$

6. –1,5 ga teskari sonni toping. 96-10-07
A)1,5 B)–0,75 C)$-\frac{2}{3}$ D)$\frac{2}{3}$ E)–3

7. $(\frac{5}{6}\cdot 5-5):\frac{2}{3}-0,5^2$ ni hisoblang. 98-08-07
A)1 B)–1 C)0,5 D)–1,75 E)–1,5

8. $2,014 : 0,19 - 2,5 \cdot 0,3$ ni hisoblang. 98-10-04
A)20,85 B)1,85 C)8,85 D)7,85 E)9,85

9. $79,9 - 79,8 + 79,7 - 79,6 + 79,5 - 79,4 + ... + 60,3 - 60,2 + 60,1 - 60$ ifodaning qiymatini toping. 99-08-07
A)100 B)20 C)10 D)18,8 E)9,9

10. $32 \cdot 0,99 \cdot 25 \cdot 1,25 + 411 + + 57 \cdot 5 \cdot 0,4 \cdot 25 \cdot \frac{4}{19}$ ni hisoblang. 02-06-01
A)2001 B)2000 C)1999 D)2002 E)1998

11. $13,5 \cdot 5,8 - 8,3 \cdot 4,2 - 5,8 \cdot 8,3 + 4,2 \cdot 13,5$ ni hisoblang. 99-06-02
A)42 B)52 C)50 D)48 E)54

12. $\frac{0,215 - 1,6 \cdot 0,215}{3,45 - 3\frac{3}{4}}$ ni hisoblang. 97-01-01
A)–0,43 B)0,43 C)4,3 D)–4,2 E)0,45

13. $\frac{0,15 - 0,15 \cdot 6,4}{0,175 - \frac{3}{8}}$ ni hisoblang. 97-06-01
A)4,05 B)40,05 C)–0,405 D)2,1 E)–0,21

14. $19,9 \cdot 18 - 19,9 \cdot 16 + 30,1 \cdot 18 - 30,1 \cdot 16$ ni hisoblang. 98-01-03
A)98 B)100 C)10 D)110 E)102

15. $109 \cdot 9,17 - 5,37 \cdot 72 - 37 \cdot 9,17 + 1,2 \cdot 72$ ni hisoblang. 98-03-03
A)360 B)350 C)290 D)380 E)310

16. $\frac{\frac{5}{11}\cdot 0,006 \cdot 2\frac{1}{5} + 1\frac{1}{8}\cdot 0,004 \cdot \frac{8}{9}}{0,5 \cdot 0,0009 + 0,0001 \cdot 0,5}$ ni hisoblang. 00-01-01
A)10 B)0,4 C)20 D)2 E)0,2

17. $12,7 \cdot 64 + 17,3 \cdot 36 + 12,7 \cdot 36 + 17,3 \cdot 64$ ning qiymatini toping. 00-02-01
A)3000 B)1800 C)2000 D)3600 E)2200

18. $\frac{0,6 \cdot 0,8 + 0,6 \cdot 1,2}{0,2^2 - 0,4^2}$ ni soddalashtiring. 01-05-05
A)–10 B)10 C)–0,1 D)–100 E)0,1

19. $\frac{2^{-2} \cdot 5^3 \cdot 10^{-4}}{2^{-3} \cdot 5^2 \cdot 10^{-5}}$ ni hisoblang. 01-05-02
A)100 B)0,01 C)2 D)5 E)10

20. $\frac{7,4 + \frac{13}{17}\cdot 0,15 \cdot 1\frac{4}{13}\cdot 6\frac{2}{3}}{0,2 \cdot 5 - 0,16}$ ni hisoblang. 99-02-01
A)10 B)8 C)12 D)6 E)11

21. $2,8 \cdot (2\frac{1}{3} : 2,8 - 1) + 2\frac{4}{5}$ ni hisoblang. 99-04-04
A)5,6 B)$2\frac{2}{3}$ C)$2\frac{1}{3}$ D)2,8 E)$3\frac{1}{3}$

22. $\frac{1,28 \cdot 6,4 \cdot 0,32}{0,512} - 1\frac{1}{5}$ ni hisoblang. 99-09-01
A)4,92 B)4,9 C)3,92 D)3,82 E)4,82

23. $\frac{\left(6\frac{3}{5} - 3\frac{3}{14}\right)\cdot 5\frac{5}{6}}{(21 - 1,25) : 2,5}$ ning qiymatini hisoblang. 01-05-01
A)2,5 B)3 C)–2,5 D)4 E)5

24. $\frac{400 - 21,5 \cdot 18,5}{1,5 \cdot 2\frac{1}{5} + 2,8 \cdot 1\frac{1}{2}}$ ni hisoblang. 01-06-01
A)$\frac{2}{7}$ B)$\frac{3}{5}$ C)$\frac{3}{7}$ D)$\frac{5}{7}$ E)$\frac{3}{10}$

25. $\frac{0,6 \cdot 0,8 + 0,6 \cdot 1,2}{0,2^2 - 0,4^2}$ ni soddalashtiring. 01-08-05
A)–10 B)10 C)–0,1 D)–100 E)0,1

26. $0,21 : \left(0,05 + \frac{3}{20}\right) - 2,5 \cdot 1,4$ ni hisoblang. 01-08-17
A)–2,45 B)–2,55 C)–2 D)–3,35 E)–2,35

27. $(\frac{1}{6} - 1\frac{2}{3} \cdot 0,2) : \frac{3}{20} + \frac{1}{5}$ ni hisoblang. 02-09-03
A)$-\frac{41}{45}$ B)$\frac{59}{45}$ C)$\frac{41}{45}$ D)$\frac{109}{45}$ E)$-\frac{59}{45}$

28. $3\frac{1}{5} \cdot (2\frac{1}{3} : 3,2 - 3) + 9,6$ ning qiymatini toping. 02-09-05
A)$1\frac{2}{3}$ B)$2\frac{1}{3}$ C)$1\frac{1}{3}$ D)$2\frac{1}{15}$ E)$3\frac{2}{3}$

29. $\left(\frac{810}{162} + \frac{675}{225}\right)\cdot\left(\frac{810}{162} - \frac{675}{225}\right) + \frac{1,11 + 0,19 - 1,3 \cdot 2}{2,06 + 0,54}$ ni hisoblang. 02-10-01
A)15,5 B)15 C)14,5 D)16 E)16,5

30. $\left(5\frac{4}{45} - 4\frac{1}{15}\right)\cdot 22,5 - \frac{4,25 : 0,85 + 0,5}{(5,56 - 4,06) : 3}$ ni hisoblang. 02-11-01
A)10,5 B)12 C)13,5 D)16 E)18

31. $(2,5-2\frac{1}{3})\cdot 5,2:2\frac{3}{5}$ ni hisoblang. 96-01-05

A) $\frac{2}{5}$ B) $\frac{1}{3}$ C)3 D) $\frac{3}{7}$ E) $2\frac{1}{3}$

32. $1,75-(-1\frac{2}{7})\cdot 6,5\cdot\frac{7}{9}$ ni hisoblang. 96-06-01

A)–4,75 B)2,15 C)8,25 D)4,75 E)7,55

33. $6\frac{3}{8}-(2,5-2\frac{1}{3}):1\frac{1}{3}$ ni hisoblang. 96-09-56

A) $5\frac{2}{3}$ B) $6\frac{1}{4}$ C) $4\frac{1}{2}$ D) $2\frac{1}{3}$ E) $5\frac{1}{4}$

34. $(5\frac{1}{3}-3,2):2\frac{2}{3}+1\frac{2}{5}$ ni hisoblang. 96-10-05

A) $2\frac{1}{2}$ B)2,2 C)3,2 D)2 E)1,8

35. $(\frac{1}{6}-1\frac{1}{15}+\frac{1}{10}):0,6+0,4$ ni hisoblang. 97-01-07

A) $1\frac{11}{15}$ B)0,88 C) $-1\frac{1}{3}$ D) $-\frac{14}{15}$ E) $-0,08$

36. $-1\frac{3}{4}\cdot 6,5\cdot\left(-\frac{4}{7}\right)-3,75$ ni hisoblang. 97-02-01

A)–2,75 B)–10,25 C)2,75 D)10,25 E)3,75

37. $(5\frac{3}{4}-4\frac{8}{9})\cdot 2+67\frac{1}{2}:2\frac{1}{7}$ ni hisoblang. 97-03-09

A) $24\frac{1}{3}$ B) $33\frac{2}{9}$ C) $36\frac{1}{9}$ D) $31\frac{1}{3}$ E) $28\frac{1}{3}$

38. $0,8+0,2:(\frac{7}{15}-1\frac{1}{6}+\frac{9}{20})$ ni hisoblang. 97-06-07

A)0 B)1 C)1,6 D)–0,6 E)–1

39. $5,8-\frac{3}{7}\cdot 2,2\cdot(-2\frac{1}{3})$ ni hisoblang. 97-08-01

A)3,6 B) -8 C)8 D)–3,6 E)6

40. $0,2+1,8\cdot(\frac{4}{9}-1\frac{1}{2}+\frac{1}{6})$ ni hisoblang. 97-11-07

A)–1,4 B)1,8 C)0,04 D)–0,36 E)–2

41. $-\frac{8}{9}\cdot 12,25\cdot 1\frac{1}{8}-(-2,25)$ ni hisoblang. 97-12-01

A)10 B)–14,5 C)–10 D)14,5 E)–10,25

42. $1\frac{1}{6}+1\frac{5}{6}\cdot(1,854:1,8-1,5\cdot 2,02)$ ni hisoblang. 98-01-05

A)–4 B) $-2\frac{5}{6}$ C) $-2\frac{1}{2}$ D)4 E) $2\frac{1}{3}$

43. $(\frac{2}{3}:3-1)\cdot 1,5^2-0,25$ ni hisoblang. 98-01-07

A)1,5 B)2 C)–5 D)–0,2 E)–1,5

44. $\frac{5}{6}+2\cdot(0,63:0,6-1,6)$ ni hisoblang. 98-01-13

A) $\frac{19}{30}$ B) $-1\frac{1}{6}$ C) $-\frac{4}{15}$ D) $-1\frac{4}{15}$ E) $\frac{8}{15}$

45. $\frac{1,8}{(4\frac{2}{5}\cdot 6\frac{1}{3}-2\frac{1}{3}\cdot 4,4)\cdot\frac{5}{22}}$ ni hisoblang. 98-02-01

A)0,4 B)4,5 C)4,2 D)4,4 E)0,45

46. $(1,6^2-2,2\cdot\frac{3}{11}):1,4$ ni hisoblang. 98-04-01

A)1,4 B)1,2 C)1,5 D)1,6 E)1,8

47. $\frac{[(1,2:36)+0,3]\cdot 9}{0,2}$ *ni hisoblang.* 98-06-04

A)148,5 B)1,5 C)150 D)15 E)16

48. $\frac{3}{16}+\frac{1}{16}\cdot(0,312:0,3-3,15\cdot 1,6)$ ni hisoblang. 98-08-05

A) $\frac{1}{4}$ B) $\frac{3}{16}$ C) $-\frac{1}{16}$ D) $-\frac{1}{8}$ E) $-\frac{5}{8}$

49. $(0,98-0,312:0,3)\cdot 25+\frac{1}{9}$ ni hisoblang. 98-08-13

A) $15\frac{1}{9}$ B) $-14\frac{8}{9}$ C) $-10\frac{7}{18}$ D) $-1\frac{7}{18}$ E) $1\frac{11}{18}$

50. $\frac{\frac{5}{19}(3\frac{4}{5}\cdot 5\frac{1}{3}+4\frac{2}{3}\cdot 3,8)}{0,005}$ ni hisoblang. 98-09-01

A)2010 B)1800 C)2120 D)2000 E) 2200

51. $(-\frac{2}{3})^2\cdot(-0,75)^3\cdot(1,5)^4\cdot(-\frac{4}{3})^3$ ni hisoblang. 98-11-01

A)1,75 B)2,75 C)2,5 D)2,25 E)1,5

52. $\frac{0,202-0,004}{\frac{8}{9}\cdot 18\cdot 0,125}$ ni hisoblang. 98-11-54

A)0,099 B)0,99 C)0,0099 D)1 E)1,98

53. $\frac{3\frac{1}{3}\cdot 1,9+19,5:4\frac{1}{2}}{\frac{62}{75}-0,16}$ *ni hisoblang* 00-04-06

A) $4\frac{1}{2}$ B)16 C)7,45 D)12 E) $9\frac{3}{4}$

54. $3,8\cdot(2,01-3,81)$ ifodani hisoblang. 00-05-13

A)6,84 B)5,82 C)–6,84
D)–5,82 E)5,84

55. $-2,4+3\frac{1}{3}-(-2,6)$ ifodaning qiymatini toping 00-05-17

A)–10,6 B)12,5 C) $3\frac{8}{15}$ D)–12,5 E) $-\frac{8}{15}$

56. $(-\frac{3}{8})\cdot(-32)+0,5\cdot(-8)$ ni hisoblang 00-05-18

A)8 B)4 C)6 D)7 E)10

57. $(0{,}2\cdot 0{,}1-0{,}1):0{,}25+0{,}75$ ni hisoblang. 00-06-02
A)1,07 B)-2,45 C)3,95 D)0,43 E)0,97

58. $(1\frac{2}{3}\cdot 2{,}2+1):2\frac{1}{5}-\frac{5}{11}$ ning qiymatini toping. 00-06-03
A)1 B)1,6 C)$2\frac{1}{3}$ D)0,6 E)$1\frac{2}{3}$

59. $0{,}21:\left(0{,}05+\frac{3}{20}\right)-2{,}5\cdot 1{,}4$ ni hisoblang. 01-08-17
A)-2,45 B)-2,55 C)-2 D)-3,35 E)-2,35

60. $\frac{0{,}13}{0{,}00013}+\frac{0{,}02}{0{,}0005}-\frac{0{,}7}{0{,}0014}$ ni hisoblang. 03-05-01
A)540 B)580 C)620 D)1400 E)740

61. Amallarni bajaring $(1{,}75:\frac{2}{3}-1\frac{3}{4}\cdot 1\frac{1}{8}):\frac{7}{12}$ 03-08-20
A)1,125 B)1,2 C)1,5 D)0,75 E)$1\frac{1}{9}$

62. $\frac{0{,}07}{0{,}21}+\frac{0{,}4}{0{,}06}+\frac{0{,}9}{0{,}05}$ ifodaning qiymatini toping. 03-10-03
A)25 B)20 C)15 D)30 E)16

63. $\frac{3{,}2\cdot 0{,}027\cdot 0{,}005}{0{,}09\cdot 0{,}0025\cdot 0{,}64}$ ning qiymatini toping. 99-04-03
A)3 B)0,3 C)30 D)2 E)0,6

64. $\frac{6{,}8\cdot 0{,}04\cdot 1{,}65}{3{,}3\cdot 5{,}1\cdot 0{,}16}$ ning qiymatini toping. 96-01-03
A)6 B)$\frac{1}{2}$ C)$\frac{2}{3}$ D)$\frac{1}{6}$ E)$\frac{5}{12}$

65. $\frac{0{,}7\cdot 1{,}8\cdot 2{,}6}{7{,}2\cdot 7{,}8\cdot 1{,}4}$ ning qiymatini toping. 96-09-54
A)$\frac{1}{24}$ B)$\frac{2}{5}$ C)0,04 D)$\frac{1}{12}$ E)$\frac{2}{3}$

66. $\frac{0{,}15\cdot 1{,}6\cdot 4{,}6}{9{,}2\cdot 0{,}03\cdot 6{,}4}$ ning qiymatini toping. 96-10-03
A)$\frac{5}{8}$ B)$\frac{2}{5}$ C)2 D)0,2 E)$\frac{5}{4}$

67. $7{,}352^2+52{,}96-2{,}648^2$ ni hisoblang. 02-01-01
A)100 B)110 C)90 D)65 E)102

68. $\frac{2{,}71^4-1{,}29^4}{(2{,}71+1{,}29)^2-2{,}71\cdot 2{,}58}$ ni hisoblang. 02-03-11
A)5,68 B)4,84 C)5,28 D)6,14 E)5,58

69. $\frac{2{,}7(1{,}7^3-1{,}5^3)}{5{,}1^2+5{,}1\cdot 4{,}5+4{,}5^2}$ ni hisoblang. 02-05-06
A)0,45 B)0,27 C)0,3 D)0,06 E)0,09

70. $\frac{(9{,}126:0{,}65+0{,}46)\cdot 7{,}18+1{,}45\cdot 28{,}2}{3{,}45^2-0{,}55^2}$ ni hisoblang. 02-10-02
A)12,5 B)12 C)11,5 D)13 E)13,5

71. $\frac{1^2-0{,}4^2}{2{,}8\cdot 0{,}4-2{,}8}$ ni hisoblang. 96-01-13
A)$\frac{1}{2}$ B)$-\frac{1}{2}$ C)-5 D)5 E)$\frac{1}{7}$

72. $\frac{0{,}2^2+2\cdot 0{,}2\cdot 0{,}3+0{,}3^2}{0{,}5\cdot 0{,}4-0{,}5\cdot 0{,}6}$ ni hisoblang. 96-09-63
A)-25 B)-2,5 C)-1 D)0,25 E)10

73. $\frac{4{,}5^2-1{,}5^2}{0{,}3\cdot 0{,}7-0{,}3}$ ni hisoblang. 96-10-13
A)-20 B)20 C)200 D)-2 E)-200

74. $\frac{0{,}2^2-2\cdot 0{,}06+0{,}3^2}{0{,}5\cdot 0{,}9-0{,}5}$ ning qiymatini hisoblang. 98-01-09
A)0,2 B)-2 C)-0,2 D)0,25 E)-1

75. $\frac{(3{,}7^2-6{,}3^2)(13^2-12{,}6^2)}{(4{,}2^2-5{,}8^2)(2{,}3^2-0{,}3^2)}$ ni hisoblang. 98-07-10
A)32 B)0,32 C)3,2 D)$\frac{1}{32}$ E)$\frac{5}{16}$

76. $\frac{0{,}5^2-0{,}5}{0{,}4^2+2\cdot 0{,}04+0{,}1^2}$ ning qiymatini hisoblang. 98-08-09
A)1 B)-1 C)-0,1 D)10 E)-2

77. $\frac{(5{,}2^2-4{,}8^2)\cdot(16{,}7^2-6{,}7^2)}{(12^2-11{,}4^2)\cdot(6{,}4^2-3{,}6^2)}$ ni hisoblang. 98-12-09
A)$2\frac{8}{21}$ B)$\frac{21}{50}$ C)$1\frac{8}{21}$ D)$\frac{7}{50}$ E)$7\frac{1}{7}$

78. $\frac{1{,}6^2-1{,}6\cdot 0{,}8+0{,}4^2}{1{,}4^2-0{,}2^2}$ ni soddalashtiring. 00-06-05
A)1,6 B)0,375 C)1,2 D)0,6 E)0,75

79. $\frac{4(0{,}8^2-0{,}8\cdot 1{,}7+1{,}7^2)}{1{,}6^3+3{,}4^3}$ ni hisoblang. 03-03-05
A)1,2 B)0,2 C)1,5 D)0,5 E)0,4

80. $\frac{0{,}6^2-0{,}6\cdot 0{,}2+0{,}1^2}{1{,}5-1{,}5^2}$ ni hisoblang. 03-11-61
A)-0,5 B)$-\frac{1}{3}$ C)-3 D)$-1\frac{2}{3}$ E)-2,5

81. $\frac{2{,}21\cdot 5{,}95+1{,}51}{6{,}42\cdot 5{,}95-8{,}88}$ ni hisoblang. 98-07-09
A)1 B)$\frac{1}{2}$ C)$1\frac{1}{2}$ D)$-\frac{62}{41}$ E)$\frac{62}{41}$

82. $\frac{3{,}21\cdot 5{,}95-4{,}44}{2{,}21\cdot 5{,}95+1{,}51}$ ni hisoblang 98-12-08
A)1 B)2 C)$\frac{1}{2}$ D)$1\frac{1}{2}$ E)$\frac{61}{186}$

83. $0{,}8(0{,}2+1)(0{,}2^2+1)(0{,}2^4+1)(0{,}2^8+1)+\left(5^{-2}\right)^8$ ni hisoblang. 99-01-04

A)1 B)$0{,}2^{16}$ C)$2\cdot 0{,}2^{16}+1$ D)2 E)3

84. $1{,}011\cdot 10^{-3}+2{,}1\cdot 10^{-4}$ yig'indi quyidagi sonlarning qaysi biriga teng? 96-09-04

A)$3{,}111\cdot 10^{-3}$ B)$3{,}111\cdot 10^{-4}$ C)$3{,}111\cdot 10^{-7}$ D)$1{,}221\cdot 10^{-3}$ E)$1{,}221\cdot 10^{-4}$

85. 3602,1 sonini standart shaklida yozing. 03-06-44

A)$3{,}6\cdot 10^3$ B)$0{,}36\cdot 10^4$ C)$36{,}02\cdot 10^2$ D)$3{,}6021\cdot 10^3$ E)$3\cdot 10^3$

86. $1{,}015\cdot 10^{-4}+3{,}14\cdot 10^{-5}$ yig'indi quyidagi sonlarning qaysi biriga teng? 96-12-62

A)$4{,}155\cdot 10^{-4}$ B)$4{,}155\cdot 10^{-5}$ C)$4{,}155\cdot 10^{-9}$ D)$1{,}329\cdot 10^{-4}$ E)$1{,}329\cdot 10^{-5}$

87. $3{,}104\cdot 10^{-2}+1{,}81\cdot 10^{-3}$ yig'indi quyidagi sonlarning qaysi biriga teng? 96-13-04

A)$3{,}285\cdot 10^{-3}$ B)$3{,}285\cdot 10^{-2}$ C)$4{,}914\cdot 10^{-2}$ D)$4{,}914\cdot 10^{-3}$ E)$4{,}914\cdot 10^{-5}$

88. $0{,}0015\cdot 0{,}016$ ko'paytma quyidagi sonlardan qaysi biriga teng emas? 98-03-04

A)$2{,}4\cdot 10^{-5}$ B)$240\cdot 10^{-7}$ C)$24\cdot 10^{-6}$ D)$0{,}24\cdot 10^{-4}$ E)$0{,}0024\cdot 10^{-3}$

89. $0{,}0025\cdot 0{,}026$ ko'paytma quyidagi sonlardan qaysi biriga teng emas? 98-10-52

A)$6{,}5\cdot 10^{-5}$ B)$650\cdot 10^{-7}$ C)$65\cdot 10^{-6}$ D)$0{,}65\cdot 10^{-4}$ E)$0{,}0065\cdot 10^{-3}$

90. $2{,}701\cdot 10^{-4}+3{,}205\cdot 10^{-3}$ yig'indi quyidagi sonlarning qaysi biriga teng? 96-03-64

A)$5{,}906\cdot 10^{-3}$ B)$5{,}906\cdot 10^{-4}$ C)$3{,}4751\cdot 10^{-3}$ D)$3{,}0215\cdot 10^{-4}$ E)$5{,}906\cdot 10^{-7}$

4-§. Davriy kasrlar ustida arifmetik amallar.

1. Quyidagi sonlardan qaysi biri 0,(2) ga teng? 96-01-12

A)$\frac{1}{9}$ B)$\frac{4}{18}$ C)$\frac{2}{3}$ D)0,22 E)$\frac{2}{10}$

2. 0,(5) soni quyidagi sonlardan qaysi biriga teng? 96-09-63

A)$\frac{1}{2}$ B)$\frac{10}{18}$ C)0,555 D)$\frac{1}{5}$ E)$\frac{4}{7}$

3. Qo'yidagi sonlardan qaysi biri 0,(7) ga teng? 96-10-12

A)$\frac{7}{10}$ B)0,777 C)$\frac{14}{18}$ D)$\frac{1}{7}$ E)$\frac{5}{7}$

4. 0,5(6) quyidagilardan qaysi biriga teng? 96-11-27

A)$\frac{56}{99}$ B)$\frac{1}{18}$ C)$\frac{34}{60}$ D)$\frac{28}{45}$ E)$\frac{17}{33}$

5. 0,2(3) ni oddiy kasrga aylantiring. 01-06-22

A)$\frac{7}{30}$ B)$\frac{4}{15}$ C)$\frac{3}{8}$ D)$\frac{2}{7}$ E)$\frac{2}{9}$

6. 5,(8) ni oddiy kasr ko'rinishida yozing. 97-04-11

A)$5\frac{8}{10}$ B)$5\frac{3}{5}$ C)$5\frac{888}{1000}$ D)$5\frac{8}{9}$ E)$5\frac{88}{100}$

7. 3,4(3) davriy kasr qaysi oddiy kasrga teng? 97-05-04

A)$3\frac{13}{33}$ B)$3\frac{3}{11}$ C)$3\frac{2}{45}$ D)$3\frac{1}{30}$ E)$3\frac{13}{30}$

8. 3,7(3) davriy kasr qaysi oddiy kasrga teng? 97-09-04

A)$3\frac{1}{3}$ B)$3\frac{67}{99}$ C)$3\frac{11}{15}$ D)$3\frac{73}{90}$ E)$3\frac{7}{9}$

9. 8,(5) ni oddiy kasrga aylantiring. 97-09-71

A)$8\frac{4}{9}$ B)$8\frac{5}{8}$ C)$8\frac{7}{8}$ D)$8\frac{5}{9}$ E)$8\frac{5}{10}$

10. 0,2 (18) ni oddiy kasr shaklida yozing. 03-08-27

A)$\frac{12}{55}$ B)$\frac{13}{55}$ C)$\frac{28}{99}$ D)$\frac{218}{900}$ E)$\frac{13}{45}$

11. 0,(8)+0,(3) ning qiymatini hisoblang. 01-03-37

A)$1\frac{1}{9}$ B)$1\frac{2}{9}$ C)0,(11) D)1,(01) E)$1\frac{1}{3}$

12. $0{,}5(6)+0{,}(8)$ ni hisoblang. 02-05-02

A)0,6(4) B)1,3(6) C)1,4(5) D)1,36 E)1,(36)

13. $0{,}(8)+0{,}(7)$ ni hisoblang. 98-05-04

A)$\frac{3}{5}$ B)$1\frac{2}{3}$ C)$1\frac{1}{4}$ D)1,(5) E)$1\frac{1}{5}$

14. $\frac{0{,}8(3)-0{,}4(6)}{0{,}(3)}$ ni hisoblang. 98-11-01

A)1,1 B)$1\frac{1}{3}$ C)3 D)0,3 E)$\frac{2}{3}$

15. $\frac{3{,}(73)-0{,}2(19)}{3\frac{513}{990}}$ ni hisoblang. 00-10-03

A)$\frac{3}{7}$ B)$\frac{3}{5}$ C)$\frac{3}{4}$ D)$\frac{2}{3}$ E)1

16. $(0{,}(6)-0{,}(45))\cdot 0{,}(33)$ ni hisoblang. 01-09-27

A)0,(7) B)$\frac{7}{9}$ C)0,(07) D)0,(007) E)$\frac{70}{99}$

17. $\frac{\frac{2}{9}+3{,}6(1)}{1{,}91(6)-1\frac{5}{6}}$ ni hisoblang. 03-07-42

A)46 B)51 C)$\frac{23}{72}$ D)42 E)1

18. $\frac{0{,}(4)+0{,}(41)+0{,}(42)+0{,}(43)}{0{,}(5)+0{,}(51)+0{,}(52)+0{,}(53)}$ ni hisoblang. 03-06-02

A)$\frac{170}{211}$ B)$\frac{83}{103}$ C)$\frac{63}{107}$ D)$\frac{65}{106}$ E)$\frac{27}{46}$

19. $\frac{0,(40)+0,(41)+0,(42)+0,(43)}{0,(50)+0,(51)+0,(52)+0,(53)}$ ni hisoblang. 03-07-04

A) $\frac{170}{211}$ B) $\frac{83}{103}$ C) $\frac{63}{107}$ D) $\frac{65}{106}$ E) $\frac{27}{46}$

20. $\frac{(16+81)\cdot\left(1+\frac{61}{36}\right):36}{\left(0,(4)+\frac{1}{0,(4)}\right)^2}\cdot 0,4$ ni hisoblang. 99-01-01

A)0,4 B)0,(4) C)14,4 D)36 E) $\frac{1}{36}$

21. $\frac{0,2(4)\cdot 4\frac{1}{11}+2\frac{1}{4}:1\frac{4}{5}}{1,125+(2\frac{2}{3})^{-1}}$ ni hisoblang. 99-03-01

A)1 B)1,5 C)1,25 D)2,5 E) $\frac{2}{3}$

22. $\frac{0,48\cdot 0,75+0,52:1\frac{1}{3}}{(0,(3)+0,(6)):0,012}$ ni hisoblang. 99-10-01

A)1 B)0,08 C)0,008 D)0,009 E)0,09

23. $(1,08-\frac{2}{25}):\frac{4}{7}-0,25:\frac{1}{3}+0,(3)$ ni hisoblang. 01-01-01

A)1 B) $\frac{4}{3}$ C) $\frac{1}{3}$ D) $\frac{2}{3}$ E) $-\frac{2}{3}$

24. $(1\frac{3}{4}:1,125-1,75:0,(6))\cdot 1\frac{5}{7}+2,8(3)$ ni hisoblang. 01-07-01

A) $2\frac{1}{7}$ B)2 C) $2\frac{2}{7}$ D)1 E) $1\frac{6}{7}$

25. $\left(6\frac{1}{3}\cdot 0,(5)+0,(4):\frac{3}{19}\right)\cdot 4\frac{5}{19}$ ni hisoblang. 01-11-01

A)28 B)27,5 C)27 D)26,5 E)26

26. $\left(2,75\cdot 0,(36)-2,75:1\frac{1}{8}\right)\cdot 2,7+1,8(3)\cdot 3,6$ ni hisoblang. 02-05-01

A)1 B)2,7 C)3,2 D)3 E)2

27. $0,4(3)+0,6(2)\cdot 2\frac{1}{2}-\frac{\frac{1}{2}+\frac{1}{3}}{0,5(8)}:\frac{50}{53}$ ni hisoblang. 02-10-03

A)0,4(8) B)0,5 C) $\frac{4}{9}$ D) $\frac{5}{9}$ E) $\frac{49}{90}$

28. $\left(\frac{81\cdot 3}{567}+\frac{22}{77}\right)\cdot 24,5-\frac{2}{3}:0,(3)$ ni hisoblang. 02-12-20

A)16,5 B)14,5 C)15,5 D)16,5 E)13,5

29. $\frac{0,(2)\cdot 0,625\cdot 4,5+1,8\cdot 0,175\cdot 0,(5)}{\frac{6}{7}\cdot 2\frac{1}{3}-1\frac{1}{6}:\frac{6}{7}}$ ni hisoblang. 00-07-01

A)0,9 B)0,7 C)0,8 D)0,6 E)0,5

30. $(1\frac{3}{4}:1,125-1,75:0,(6))\cdot 1\frac{5}{7}+2,8(3)$ ni hisoblang. 01-07-01

A) $2\frac{1}{7}$ B)2 C) $2\frac{2}{7}$ D)1 E) $1\frac{6}{7}$

31. $3,2(62)-1,(15)$ ni hisoblang. 01-01-03

A)2.2(47) B)2,247 C)2,(12) D)2,(1) E)2,01

32. $3\frac{127}{495}$ ni cheksiz davriy o'nli kasr ko'rinishida yozing. 02-11-02

A)3,(127) B)3,(254) C)3,2(54) D)3,2(56) E)3,25(4)

33. $\frac{13}{225}$ ni cheksiz davriy o'nli kasr shaklida yozing. 03-03-03

A)0,05(2) B)0,5(2) C)0,2(5) D)0,02(5) E)0,05(7)

34. Davri 0 yoki 9 dan farqli bo'lgan cheksiz davriy o'nli kasrlarni ko'rsating. 98-12-05

$m = 2,32666\ldots$, $n=\frac{7}{99}$, $p=\frac{5}{16}$,

$q = 7,145222\ldots$, $l = 3,222$.

A)m, n B)m, q C)m, n, q D)m, n, p E)hammasi

35. $m = 0,55(57)$; $n = 0,5(557)$; $l = 0,555(7)$ sonlarini kamayish tartibida yozing. 98-07-07

A) $l > m > n$ B) $l > n > m$ C) $m > n > l$ D) $n > l > m$ E) $n > m > l$

36. $m = 0,22(23)$; $n = 0,2(223)$; $l = 0,222(3)$ sonlarini o'sish tartibida yozing. 98-12-06

A) $n < m < l$ B) $l < m < n$ C) $m < n < l$ D) $m < l < n$ E) $n < l < m$

37. 0,6(3) ni oddiy kasrga aylantiring. 2006

A) $\frac{4}{15}$ B) $\frac{2}{30}$ C) $\frac{62}{90}$ D) $\frac{57}{90}$

1-§. Raqamlar tushunchasi. Tub va murakkab sonlar. O'zaro tub sonlar.

1. 1, 2 va 3 raqamlari yordamida yozilgan turli raqamli barcha uch xonali sonlar yig'indisini toping. 03-01-28
A)1233 B)2133 C)1332 D)2331 E)3213

2. Bir xil raqamlardan iborat ikki xonali sonlar yig'indisini toping. 02-10-19
A)495 B)505 C)491 D)550 E)521

3. 1; 2; 3; 15; 17; 23; 24; 169; 289; 361 sonlar ketma-ketligida nechta tub son bor? 02-09-04
A)3 B)4 C)5 D)7 E)8

4. Quyidagi sonli ketma-ketliklardan qaysilari tub sonlardan iborat? 99-03-07
1) 0, 3, 5, 7, 11; 2) 1, 3, 5, 7, 13;
3) 3, 5, 7, 9, 11; 4) 2, 3, 5, 7, 17;
5) 3, 5, 17, 19, 381.
A)1; 2 B)2; 4 C)5 D)3 E)4

5. 30 dan kichik tub sonlar nechta? 99-07-10
A)11 B)9 C)10 D)12 E)8

6. 50 dan kichik tub sonlar nechta? 98-05-08
A)10 B)15 C)17 D)9 E)16

7. 1601 sonini tub ekanligini aniqlash uchun uni ketma-ket 2; 3; 5 va hokazo tub sonlarga bo'lib boriladi. Qanday tub songa yetganda bo'lishni to'xtatish mumkin? 97-05-14
A)29 B)31 C)37 D)41 E)43

8. 3607 sonini tub son ekanligini aniqlash uchun uni ketma-ket 2; 3; 5 va hokazo tub sonlarga bo'lib boriladi. Qanday tub songa yetganda bo'lishni to'xtatish mumkin? 97-09-14
A)41 B)43 C)47 D)53 E) 59

9. Qaysi juftlik o'zaro tub sonlardan iborat? 97-05-10
A)(8; 14) B)(11, 22) C) (12; 35) D)(12; 34) E)(10; 26)

10. Qaysi juftlik o'zaro tub sonlardan iborat? 97-09-16
A)(21; 14) B)(21; 10) C)(12; 15) D)(10; 15) E) (8; 14)

11. 9, 10, 22 va 25 sonlari orasida nechta o'zaro tub sonlar jufti bor? 97-07-07
A)4 B)3 C)2 D)6 E)5

12. [4; 8] kesmada nechta o'zaro tub sonlar jufti bor? 97-04-08
A)5 B)6 C)4 D)7 E)8

13. Quyidagi tasdiqlardan qaysilari to'g'ri? 00-03-03
1) Toq va juft sonlar doim o'zaro tub;
2) Ikkita juft son o'zaro tub bo'la olmaydi;
3) Ikkita turli tub sonlar doim o'zaro tub;
4) Ikkita ketma-ket natural sonlar doim o'zaro tub;
5) 39 va 91 sonlari o'zaro tub;

A)1; 3; 5 B)4; 5 C)2; 3; 5 D)2; 3; 4 E)3; 4

2-§. Bo'linish alomatlari.

1. 246.013579 soni 9 ga bo'linishi uchun nuqtaning o'rniga qanday raqam qo'yilishi kerak? 02-04-28
A)0 B)4 C)7 D)8 E)9

2. n raqamining qanday qiymatlarida $6134n$ soni 3 ga qoldiqsiz bo'linadi? 97-04-12
A)1 B)4 C)2 D)4; 2 E)1; 4; 7

3. n raqamaning qanday qiymatlarida $7851n$ soni 9 ga qoldiqsiz bo'linadi? 97-09-77
A)2 B)4 C)6 D)9 E)2; 6

4. x raqamining qanday eng kichik qiymatida $(147 + 3x2)$ son 3 ga qoldiqsiz bo'linadi? 98-07-04
A)5 B)0 C)4 D)7 E)1

5. x raqamining qanday eng katta qiymatida $(471 + 2x3)$ soni 3 ga qoldiqsiz bo'linadi? 98-12-04
A)7 B)8 C)9 D)4 E)5

6. 35 ta natural sonni ketma-ket yozish natijasida hosil bo'lgan 123... 3435 sonini 25 ga bo'lish natijasida hosil bo'lgan qoidik nechaga teng? 00-05-05
A)15 B)20 C)5 D)10 E)0

7. Quyidagi sonlardan qaysi biri 45 ga qoldiqsiz bo'linadi? 01-11-02
A)42·85 B)35·61 C)80·123 D)36·20 E)143·30

8. Quyidagi ko'paytmalardan qaysi biri 45 ga qoldiqsiz bo'linadi? 02-12-21
A)$42 \cdot 85$ B)$35 \cdot 61$ C)$80 \cdot 123$
D)$39 \cdot 18$ E)$243 \cdot 80$

9. 821 ga qanday eng kichik musbat sonni qo'shganda, yig'indi 6 ga qoldiqsiz bo'linadi? 99-02-03
A)4 B)1 C)5 D)7 E)9

10. $x = 220350$, $y = 3{,}21 \cdot 10^6$ va $z = 1024145$ sonlardan qaysilari 15 ga qoldiqsiz bo'linadi? 96-07-02
A)faqat x B)faqat z C)y va z D)x va y E)x va z

11. $x = 30112$, $y = 3{,}3 \cdot 10^5$ va $z = 102588$ sonlardan qaysilari 12 ga qoldiqsiz bo'linadi. 97-03-02
A)faqat y B)faqat x C) x va y
D)faqat z E) y va z

12. 17827516 quyidagi sonlardan qaysi biriga qoldiqsiz bo'linadi? 97-04-02
A)3 B)10 C)4 D)5 E)9

13. $x = 10842$, $y = 5{,}49 \cdot 10^4$ va $z = 306198$ sonlardan qaysilari 18 ga qoldiqsiz bo'linadi? 97-07-02
A)faqat x B)faqat y C) x va y D)faqat z E)y va z

14. n raqamining qanday qiymatlarida $50 + n$ soni eng kam tub ko'paytuvchilarga ajraladi? 97-09-61
A)3 B)5 S) 3; 9 D)1; 9 E) 9

15. 41582637 quyidagi sonlardan qaysi biriga qoldiqsiz bo'linadi? 97-09-62
A) 4 B)9 C)5 D)10 E) 6

16. Quyidagi sonlardan qaysi biri 15 ga qoldiqsiz bo'linmaydi? 98-02-03
A)6525 B)3105 C)4620 D)6145 E)1245

17. Berilgan p = 1018978560, q=89761194416 va r = 987610734 sonlardan qaysilari 16 ga qoldiqsiz bo'linadi? 98-03-03
A)hech qaysinisi B)p C)q D)r E)p va q

18. Quyidagi sonlardan qaysi biri 12 ga qoldiqsiz bo'linmaydi? 98-09-
A)9216 B)13626 C)12024 D)18312 E) 52308

19. Quyidagi sonlardan qaysi biri 36 ga qoldiqsiz bo'linmaydi? 98-10-
A)2016 B)3924 C)1782 D)8244 E)2484

20. Berilgan p = 10189144, q = 396715256 va r=78901644 sonlardan qaysilari 8 ga qoldiqsiz bo'linadi? 98-10-51
A)hech qaysinisi B)p va q C)p va r
D)p E)r

21. 752 sonining o'ng tomoniga qanday raqam yozilsa, hosil bo'lgan son 36 ga qoldiqsiz bo'linadi? 00-07-03
A)0 B)2 C)6 D)7 E)4

22. 3*470 yozuvdagi ko'paytuvchini shunday raqam bilan almashtiringki, hosil bo'lgan son 45 ga qoldiqsiz bo'linsin. 00-08-03
A)4 B)5 C)0 D)6 E)8

23. Nechta ikki xonali son 15 ga qoldiqsiz bo'linadi? 03-
A)4 B)5 C)7 D)6 E)8

24. Agar a va b ixtiyoriy natural sonlar bo'lsa, u holda $2a+8b$ ifoda quyidagi sonlarning qaysi biriga qoldiqsiz bo'linadi? 02-01-30
A)2 B)3 C)4 D)12 E)24

25. Quyidagi tasdiqlardan qaysi biri hamma vaqt to'g'ri? 02-03-12
A)har bir qo'shiluvchi 11 ga bo'linsa, yig'indi ham 11 ga bo'linadi
B)birorta ham qo'shiluvchi 11 ga bo'linmasa, yig'indi ham 11 ga bo'linmaydi
C)qo'shiluvchilardan kamida bittasi 11 ga bo'linsa, yig'indi ham 11 ga bo'linadi
D)yig'indi 11 ga bo'linsa, har bir qo'shiluvchi ham 11 ga bo'linadi
E)yig'indi 11 ga bo'linmasa, birorta ham qo'shiluvchi 11 ga bo'linmaydi.

26. Natural sonlarga nisbatan quyidagi mulohazalarning qaysi biri noto'g'ri? 96-06-05
A)berilgan sonlarga bo'linadigan sonlarning eng kichigi bu sonlarning eng kichik karralisi bo'ladi
B)agar qo'shiluvchilarning har biri 13 ga bo'linsa, u holda ularning yig'indisi ham 13 ga bo'linadi
C)agar biror sonning raqamlari yig'indisi 9 ga bo'linsa, u holda bu son 9 ga bo'linadi
D)oxirgi raqami 4 bo'lgan son 4 ga bo'linadi
E)3 ga hamda 2 ga bo'lingan sonlarning barchasi 6 ga bo'linadi.

27. Natural sonlar uchun quyidagi mulohazalardan qaysi biri noto'g'ri? 97-02-05
A)berilgan sonlar bo'linadigan sonlarning eng kattasi ularning eng katta umumiy bo'luvchisi bo'ladi
B)Agar ikki qo'shiluvchidan biri 11 ga bo'linib, ikkinchisi 11 ga bo'linmasa, ularning yig'indisi 11 ga bo'linmaydi
C)3 ga bo'linadigan son 9 ga ham bo'linadi
D)3 va 5 ga bo'linadigan son 15 ga bo'linadi
E)raqamlarining yig'indisi 3 ga bo'linadigan juft son 6 ga ham bo'linadi

28. Quyidagi mulohazalarning qaysi biri natural sonlarga nisbatan noto'g'ri: 97-08-05
A)berilgan sonlarga bo'linadigan sonlarning eng kichigi bu sonlarning eng kichik karralisi bo'ladi
B)3 hamda 4 ga bo'lingan son 12 ga ham bo'linadi
C)oxirgi raqami 0 yoki 4 bo'lgan son 4 ga bo'linadi
D)oxirgi raqami 0 yoki 5 bo'lgan son 5 ga bo'linadi
E) faqat o'ziga va birga bo'lingan son tub son bo'ladi

29. $986^2 - 319^2 = 2001n$ bo'lsa, n ning qiymatini toping. 02-07-43
A)435 B)443 C)515 D)475 E)445

30. $5 < x < 98$ tengsizlikni qanoatlantiruvchi, bo'luvchisi 12 ga teng bo'lgan nechta natural son mavjud? 99-08-09
A)8 B)10 C)12 D)6 E)14

31. Ikki xonali son bilan uning raqamlari o'rinlarini almashtirishdan hosil bo'lgan son yig'indisi quyidagilardan qaysi biriga qoldiqsiz bo'linadi? 98-04-02
A)3 B)11 C)9 D)4 E)7

32. 3, 6, 7 va 9 raqamlaridan ularni takrorlamasdan mumkin bo'lgan barcha 4 xonali sonlar tuzilgan. Bu sonlar ichida nechtasi 4 ga qoldiqsiz bo'linadi? 03-06-37
A)2 B)4 C)6 D)8 E)12

33. $7^6 - 27$ soni quyidagilarning qaysi biriga qoldiqsiz bo'linadi? 03-06-09
A)51 B)49 C)45 D)23 E)13

34. $7^6 + 27$ soni quyidagilarning qaysi biriga qoldiqsiz bo'linadi? 03-07-14
A)51 B)49 C)45 D)23 E)13

3-§. Arifmetikaning asosiy teoremasi. EKUB va EKUK. Bo'luvchilar soni va ularning yig'indisi.

1. 8 va 6 sonlarining eng kichik umumiy karralisini toping. 96-03-
A) 16 B)24 S) 12 D)8 E)48

2. 6 va 4 sonlarning eng kichik umumiy karralisini toping. 96-12-
A)6 B)14 C)24 D)28 E)12

3. 24; 18 va 30 sonlari eng kichik umumiy karralisining eng katta umumiy bo'luvchisiga nisbatini toping. 90-02-04
A)90 B)72 C)48 D)30 E)60

4. n raqamining qanday qiymatlarida $10+n$ va 10 sonlarining eng kichik umumiy karralisi 60 bo'ladi? 97-04-01
A)2 B)0 C)5; 2 D)2; 0 E)5

5. 270 va 300 sonlari eng kichik umumiy karralisining 4 va 6 sonlarining eng kichik umumiy karralisiga nisbatini toping 98-11-02
A)25 B)45 C)225 D)95 E)125

6. 21 va 35 sonlarining eng kichik umumiy karralisi bilan eng katta umumiy bo'luvchisining yig'indisini toping. 98-10-01
A)108 B)110 C)112 D)109 E)114

7. 72 va 96 sonlarining eng kichik umumiy karralisining eng katta umumiy bo'luvchisiga nisbatini toping. 00-03-05
A)10 B)0,1 C)9 D)12 E) $\frac{1}{12}$

8. 18 va 12 sonlarni eng kichik umumiy karralisining eng katta umumiy bo'luvchisiga ko'paytmasini toping. 00-07-02
A)220 B)218 C)214 D)216 E)212

9. 108 va 135 sonlarining eng kichik umumiy karralisini 12 va 54 sonlari eng kichik umumiy karralisiga nisbatini toping. 00-10-02
A)8 B)5 C)12 D)6 E)10

10. $\frac{2}{7}, \frac{4}{11}, \frac{6}{13}$ va $\frac{8}{19}$ sonlariga bo'linganda, bo'linma butun son chiqadigan eng kichik natural sonni toping. 03-06-04
A)6 B)12 C)18 D)24 E)48

11. $\frac{2}{7}, \frac{4}{11}$ va $\frac{6}{13}$ sonlariga bo'linganda, bo'linma butun son chiqadigan eng kichik natural sonni toping. 03-07-06
A)6 B)12 C)18 D)24 E)48

12. $\frac{3}{7}, \frac{4}{17}, \frac{21}{23}$ sonlariga bo'lganda, butun son chiqadigan eng kichik natural sonni toping. 02-03-03
A)84 B)36 C)42 D)63 E)34

13. Bolalar archa bayramida bir xil sovg'a olishdi. Hamma sovg'alar jami 123 ta olma va 82 ta nok bo'lgan. Archa bayramida nechta bola qatnashgan va har bir bola nechta olma va nechta nok olgan? 97-05-07
A)41; 3; 2 B)82; 1; 1 C)20; 61; 41 D)41; 2; 3 E)61; 2; 1

14. Bolalar archa bayramida bir xil sovg'a olishdi. Hamma sovg'alarda 76 ta mandarin va 57 ta konfet bo'lgan. Bayramda nechta bola qatnashgan va har bir bola nechta mandarin va nechta konfet olgan? 97-09-07
A)19; 3; 4 B)3; 25; 19 C)57; 1; 1 D)19; 4; 3 E)4; 19; 16

15. Ikki sonning ko'paytmasi 294 ga, ularning eng katta umumiy bo'luvchisi 7 ga teng. Bu sonlarning eng kichik umumiy karralisini toping 99-08-19
A)42 B)52 C)56 D)49 E)70

16. $3p-3 \in N$ son 1; 2; 3; 6; 9 va 18 ga qoldiqsiz bo'linadi. p ning eng kichik natural qiymatini toping 99-02-03
A)14 B)21 C)7 D)5 E)24

17. 56 va 16 sonlarining umumiy bo'luvchilari nechta? 99-01-01
A)4 B)3 C)2 D)5 E)6

18. 630 va 198 ning umumiy bo'luvchilari nechta? 98-01-01
A)5 B)6 C)4 D)7 E)8

19. 36 ning natural bo'luvchilari nechta? 02-05-05
A)5 B)7 C)8 D)9 E)4

20. 594 va 378 ning umumiy bo'luvchilari nechta? 96-09-01
A)8 B)7 C)9 D)5 E)6

21. 420 va 156 ning umumiy bo'luvchilari nechta? 96-12-01
A)7 B)5 C)6 D)4 E)8

22. 8 va 12 sonlari eng kichik umumiy karralisining natural bo'luvchilari nechta? 98-02-02
A)6 B)7 C)8 D)9 E)10

23. 312 va 12 sonlarining umumiy buluvchilari nechta? 96-05-01
A)2 B)4 C)3 D)6 E)1

24. 15 va 25 sonlari eng kichik umumiy karralisining natural bo'luvchilari nechta? 98-09-02
A)5 B)4 C)6 D)7 E)8

25. $\frac{1}{30}$ va $\frac{1}{45}$ kasr umumiy maxrajining barcha natural bo'luvchilari soni nechta? 00-05-07
A)11 B)7 C)12 D)11 E)8

26. 20 dan katta bo'lmagan barcha natural sonlarning ko'paytmasi n ($n \in N$) ning qanday eng katta qiymatida 2^n ga qoldiqsiz bo'linadi? 02-12-22
A)10 B)18 C)20 D)16 E)14

27. 48 sonining barcha natural bo'luvchilari yig'indisini toping 00-05-06
A)123 B)100 C)108 D)124 E)128

4-§. Kasrning davriyligi.

1. Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishiga keltirib bo'lmaydi? 96-03-03
1. $\frac{7}{40}$; 2. $\frac{3}{28}$; 3. $\frac{13}{35}$; 4. $\frac{18}{250}$; ?
A)1; 2 B)2; 3 C)3; 4 D)4, 1 E)2; 4

2. Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishiga keltirib bo'lmaydi: 96-09-03
1) $\frac{7}{32}$ 2) $\frac{11}{160}$ 3) $\frac{5}{48}$ 4) $\frac{5}{14}$
A)2, 3 B)3; 4 C)4; 1 D)1; 2 E)2; 4

3. Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishiga keltirib bo'lmaydi? 96-12-01
1) $\frac{35}{88}$; 2) $\frac{4}{125}$; 3) $\frac{34}{75}$; 4) $\frac{11}{80}$
A)1; 2 B)3; 4 C)1; 3 D)2; 4 E)1; 4

4. Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishi keltirib bo'lmaydi:

1. $\frac{14}{625}$; 2. $\frac{3}{64}$; 3. $\frac{32}{75}$; 4. $\frac{11}{375}$

A)1; 2 B)2; 3 C)3; 4 D)4; 1 E)2; 4 96-13-03

5. Davri 0 yoki 9 dan farqli bo'lgan cheksiz davriy o'nli kasrlarni ko'rsating: $m = \frac{1}{0{,}33}$,

$n = 247{,}123123\ldots$, $p = 0{,}63(8)$, $q = \frac{172}{99}$,

$l = \frac{17}{20}$.

A) n, p B) m, n, l C) m, n, p, q D) m, q
E)hammasi 98-07-06

6. $a = 1 - 0{,}3(5)$, $b = \frac{2}{3}$ va $c = 0{,}6(5)$ a, b va c sonlar uchun quyidagi munosabatlardan qaysi biri o'rinli?

A) $c < a < b$ B) $a < c < b$ C) $a < b < c$
D) $b < a < c$ E) $b < c < a$ 96-09-08

7. $a = 0{,}6(4)$, $b = \frac{59}{90}$ va $c = 1 - 0{,}36(9)$.

a, b va c sonlar uchun quyidagi munosabatlardan qaysi biri o'rinli?

A) $a < c < b$ B) $a < b < c$ C) $b < a < c$
D) $b < c < a$ E) $c < a < b$ 96-12-66

5-§. Qoldiqli bo'lish.

1. Qaysi tenglik qoldiqli bo'lishni ifodalaydi?
1) $43 = 9 \cdot 5 - 2$ 2) $43 = 8 \cdot 5 + 3$
3) $43 = 7 \cdot 5 + 8$ 4) $43 = 21 \cdot 2 + 1$
A)1; 2; 4 B)2; 3; 4 C)2, 4 D)3; 4
E)hammasi 98-07-03

2. Qaysi tenglik qoldiqli bo'lishni ifodalaydi?
1) $47 = 4 \cdot 11 + 3$; 2) $47 = 6 \cdot 6 + 11$;
3) $47 = 9 \cdot 5 + 2$; 4) $47 = 7 \cdot 7 - 2$
A)1; 3 B)1; 2; 3 C)1; 4 D)2; 3 E)hammasi 98-12-03

3. $7 + 69 + 671 + 6673 + 66675$ ni 6 ga bo'lishdagi qoldiqni toping.
A)1 B)4 C)3 D)5 E)2 99-01-03

4. 243 ni qandaydir songa bo'lganda bo'linma 15 ga, qoldiq 3 ga teng chiqdi. Bo'luvchi nechaga teng?
A)17 B)16 C)18 D)19 E)21 96-06-02

5. 358 ni qanday songa bo'lganda bo'linma 17 va qoldiq 1 bo'ladi?
A)19 B)21 C)22 D)20 E) 23 97-08-02

6. Natural sonni 18 ga bo'lganda, bo'linma 15 ga, qoldiq 3 ga teng bo'ldi Bo'linuvchini toping.
A)173 B)243 C)253 D)273 E)263 97-12-03

7. 624 ni qanday songa bo'lganda, bo'linma 41 ga, qoldiq esa 9 ga teng bo'linadi?
A)16 B)17 C)13 D)15 E)12 00-07-04

8. 36455478354 ni 2, 4, 5, 9, 10 va 25 ga bo'lganda hosil bo'lgan qoldiqlar yig'indisini toping.
A)18 B)16 C)15 D)14 E)12 99-03-05

9. Qandaydir sonni 1995 ga bo'lganda, qoldiq 1994 ga teng bo'lsa, shu sonni 5 ga bo'lgandagi qoldiqni toping.
A)4 B)3 C)2 D)1 E)0 98-06-01

10. Qandaydir sonni 289 ga bo'lganda, qoldiq 287 ga teng bo'labo'lsa, shu sonni 17 ga bo'lgandagi qoldiqni toping.
A)15 B)2 C)5 D)16. E)0 98-11-51

11. 39 ni bo'lganda, qoldiq 9 chiqadigan barcha natural sonlarning yig'indisini toping.
A)60 B)45 C)50 D)48 E)55 01-06-06

12. Ikki natural sonni 5 ga bo'lganda, mos ravishda 1 va 3 qoldiq hosil bo'ladi. Bu sonlar kvadratlarining yig'indisini 5 ga bo'lganda, qoldiq nechaga teng bo'ladi?
A)4 B)1 C)2 D)3 E)0 99-08-25

13. n sonini 7 ga bo'lganda, qoldiq 5 ga, m sonini 7 ga bo'lganda, qoldiq 6 ga teng. mn ko'paytmani 7 ga bo'lganda, qoldiq nechaga teng bo'ladi?
A)4 B)0 C)1 D)2 E)3 99-08-26

14. 3 ga bo'linmaydigan natural sonning kubini 9 ga bo'lganda, qoldiq qanday sonlar bo'lishi mumkin?
A)1 yoki 8 B)0 yoki 1 C)0 yoki 8
D)3 yoki 6 E)0; 1 yoki 8 00-02-10

15. Natural a sonni natural b songa bo'lganda, bo'linma c ga va qoldiq d ga teng bo'ldi. Agar bo'linuvchi va bo'luvchi 2 marta orttirilsa, d qanday o'zgaradi?
A)o'zgarrmaydi B)2 marta kamaradi C)1 taga ortadi D)2 marta ko'paydi E)1 taga kamaradi 98-10-38

16. 2146, 1991 va 1805 sonlarining har birini qanday natural songa bo'lganda, qoldiqlari bir xil chiqadi?
A)7 B)13 C)21 D)31 E)37 01-07-08

17. 331 sonini n natural songa bo'lganda, bo'linma 4n bo'lsa, qoldiq nechaga teng bo'ladi?
A)7 B)6 C)5 D)4 E)3 02-07-49

18. 1 dan 75 gacha bo'lgan natural sonlardan kvadratining 3 ga bo'lganda 1 qoldiq qoladigan sonlar yig'indisini toping.
A)1875 B)925 C)1900 D)2850 E)2125 02-10-53

19. 4^{12} ni 9 ga bo'lganda, qoldiq necha bo'ladi?
A)1 B)2 C)4 D)7 E)8 99-01-06

20. 3^{20} ni 7 ga bo'lgandagi qoldiqni toping.
A)6 B)3 C)1 D)2 E)4 98-06-07

21. 9^{10} ni 7 ga bo'lgandagi qoldiqni toping.
A)1 B)3 C)2 D)6 E)4 98-11-57

22. 2002^{2002} sonini 5 ga bo'lganda, qoldiq nimaga teng?
A)0 B)1 C)2 D)3 E)4 03-07-07

23. Natural sonni 18 ga bo'lganda, bo'linma 19 ga, qoldiq 8 ga teng bo'ldi Bo'linuvchini toping.
A)243 B)263 C)273 D)350 2006

6-§. Oxirgi raqam.

1. $17 \cdot 28 \cdot 41 \cdot 35 - 24 \cdot 12 \cdot 87$ ayirma qanday raqam bilan tugaydi? 97-01-02
A)0 B)2 C)4 D)6 E)8

2. $15 \cdot 25 \cdot 37 \cdot 43 + 34 \cdot 48 \cdot 77$ yig'indining oxirgi raqamini toping. 97-11-02
A)4 B)9 C)0 D)5 E)7

3. 7 ni berilgan songa ko'paytirganda, hosil bo'lgan son ... 36 ko'rinishida bo'lsa, berilgan son quyidagilardan qaysi biri ko'rinishida bo'lishi mumkin? 98-03-02
A)...18 B)...98 C)...52 D)...48 E)...78

4. 6 ni berilgan songa ko'paytirganda, hosil bo'lgan son ...44 ko'rinishda bo'lsa, berilgan son quyidagilardan qaysi biri ko'rinishida bo'lishi mumkin? 98-10-50
A)...24 B)...19 C)...79 D)...14
E) ...34

5. Barcha ikki xonali sonlar yig'indisi qanday raqam bilan tugaydi? 99-08-14
A)5 B)0 C)4 D)2 E)9

6. $11^6 + 14^6 - 13^3 - 8$ ning qiymati qanday raqam bilan tugaydi? 99-06-07
A)1 B)2 C)3 D)4 E)6

7. Oxirgi raqami 3 ga teng bo'lgan 13 ta ko'paytuvchining ko'paytmasi qanday raqam bilan tugaydi? 99-08-08
A)3 B)1 C)9 D)7 E)6

8. $9^{20} - 7^{20}$ ayirmaning oxirgi raqamini toping. 99-01-02
A)0 B) 7 C)1 D)3 E)2

9. $9^{1996} + 9^{1997}$ yig'indi qanday raqam bilan tugaydi? 96-06-11
A)0 B)1 C)2 D)3 E)5

10. 7^{100} ni oxirgi raqamini toping. 96-09-11
A)3 B)5 C)7 D)9 E)1

11. 2^{100} ning oxirgi raqamini toping. 96-13-11
A)2 B)0 C)4 D)6 E)8

12. 6^{1971} ning oxirgi raqamini toping. 97-05-13
A)2 B)6 C)8 D)4 E) 1

13. 2^{1971} ning oxirgi raqamini toping. 97-03-13
A)2 B)6 C)4 D)8 E) 0

14. 1 dan 75 gacha bo'lgan toq sonlar yig'indisi qanday raqam bilan tugaydi? 00-05-01
A)0 B)2 C)3 D)4 E)8

15. 3^{2000} soni qanday raqam bilan tugaydi? 00-05-02
A)0 B)1 C)2 D)3 E)7

16. $1 \cdot 2 \cdot 3 \cdot 4 \cdots 26 \cdot 27 - 1 \cdot 3 \cdot 5 \cdot 7 \cdots 25 \cdot 27$ ayirmaning oxirgi raqamini toping. 00-03-08
A)4 B)3 C)5 D)6 E)8

17. 1 dan 50 gacha bo'lgan sonlarning ko'paytmasi nechta nol bilan tugaydi? 00-01-02
A)14 B)10 C)13 D)11 E)12

18. $1 \cdot 2 \cdot 3 \cdots 50$ ko'paytma nechta nol bilan tugaydi? 00-05-
A)8 B)10 C)9 D)14 E)12

19. 10 dan boshlab 75 dan katta bo'lmagan barcha natural sonlarni ko'paytirish natijasida hosil bo'lgan sonning oxirida nechta nol qatnashadi? 00-05-01
A)15 B)16 C)17 D)18 E)14

20. $125^6 \cdot 15^4 \cdot 2048^2$ ko'paytmaning qiymati necha xonali son bo'ladi? 02-03-07
A)24 B)26 C)22 D)23 E)25

21. $41 \cdot 17 \cdot 28 \cdot 35 - 24 \cdot 12 \cdot 87$ ayirma qanday raqam bilan tugaydi? 2006
A)2 B)0 C)6 D)4

1-§. Yig'indi va ko'paytmaning xossalari.

1. Agar kamayuvchini 16 ga va ayriluvchini 20 ga orttirilsa, ayirma qanday o'zgaradi? (98-02-06)
A)4 ga kamayadi B)36 ga ortadi
C)36 ga kamayadi D)4 ga ortadi
E)26 ga kamayadi

2. Agar kamaюvchini 24 ga va ayriluvchini 36 ga kamaytirilsa, ayirma qanday o'zgaradi? (98-09-05)
A)56 ga kamayadi B)24 ga ortadi
C)12 ga ortadi D)12 ga kamayadi
E)56 ga ortadi

3. Kamayuvchi, ayriluvchi va ayirmaning yig'indisi 624 ga teng. Kamayuvchini toping. (00-04-16)
A)244 B)194 C)312 D)240 E)188

4. Ko'paytmaning har bir hadi 2 ga ko'paytirildi, natijada ko'paytma 1024 marta ortdi. Ko'paytmada nechta had qatnashgan? (98-09-57)
A)8 B)9 C)10 D)11 E)12

5. Anvar bir son o'yladi, bu songa birni qo'shib, so'ngra uni 2 ga ko'paytirdi, ko'paytmani 3 ga bo'ldi va bo'linmadan 4 ni ayirdi, natijada 5 hosil bo'ldi. Anvar qanday son o'ylagan? (00-04-17)
A)7 B)8 C)9 D)6,5 E)12,5

6. $5\frac{7}{12}$ son $11\frac{1}{6}$ ga ko'paygan bo'lsa, u necha marta ko'paygan? (98-10-55)
A)3 B)2 C)2,5 D)3,5 E)1,75

7. Bir nechta natural sonlarning yig'indisi 75 ga teng. Agar shu sonlarning har biridan 2 ni ayirib, yig'indisi hisoblansa, u 61 ga teng bo'ladi. Yig'indida nechta son qatnashgan? (96-01-02)
A)5 B)7 C) 14 D)8 E)6

8. Bir nechta natural sonlarning yig'indisi 77 ga teng. Agar shu sonlarning har biridan 4 ni ayirib yig'indi hisoblansa, u 61 ga teng bo'ladi. Yig'indida nechta natural son qatnashgan? (96-09-53)
A)4 B)6 C)8 D)12 E)24

9. Bir necha natural sonlarning yig'indisi 60 ga teng. Agar shu sonlarning har biriga 2 ni qo'shib yig'indi hisoblansa, u 76 ga teng bo'ladi. Yig'indida nechta son qatnashgan? (96-10-02)
A)5 B)8 C)9 D)16 E)18

10. Berilgan to'rtta sonning har biriga 3 ni qo'shib, so'ngra ularning har birini 2 ga ko'paytirib chiqqach, hosil bo'lgan sonlar yig'indisi 70 ga teng bo'ldi. Berilgan sonlar yig'indisi nechaga teng? (98-03-01)
A)18 B)19 C)23 D)21 E)20

11. Yig'indisi 22 bo'lgan ikki sonning har biridan 5 ni ayirib ko'paytirilganda 32 bo'ladi. Berilgan sonlar ko'paytmasi necha bo'ladi? (02-07-48)
A)117 B)57 C)120 D)121 E)112

12. Berilgan beshta sonning har biri 3 ga ko'paytirilib, so'ngra hosil bo'lgan sonlarning har biriga 2 qo'shildi. Hosil bo'lgan sonlar yig'indisi 70 ga teng bo'lsa, berilgan sonlar yig'indisi nechaga teng bo'lgan? (98-10-49)
A)20 B)22 C)15 D)25 E)24

13. Ikki sonning ko'paytmasi 2,88 ga teng. Birinchi ko'paytuvchi 0,3 ga, ikkinchi ko'paytuvchi 1,6 ga bo'linsa, ko'paytma necha bo'ladi? (03-08-22)
A)6 B)10 C)12 D)8 E)14

14. Ikkita to'rt xonali sonning ayirmasi eng kami bilan nechaga teng bo'la oladi? (03-12-13)
A)– 8999 B)– 9000 C)– 8998
D)– 19998 E)– 19999

2-§. O'rta arifmetik va o'rta geometrik qiymatlar.

1. 4 va 64 sonlarining o'rta arifmetigi ularning o'rta geometrigidan necha marta katta? (03-04-04)
A) $2\frac{1}{4}$ B) $2\frac{3}{4}$ C)2,2 D) $2\frac{3}{8}$ E) $2\frac{1}{8}$

2. y; 2,1; 3 va 2,1 sonlarining o'rta arifmetigi 2,3 ga teng. y ni toping. (96-10-10)
A)2,1 B)2,6 C)2 D)3,4 E)3

3. 5,4; y; $-2,2$ sonlarning o'rta arifmetigi 1,2 ga teng. y ni toping. (96-09-60)
A)1,2 B)–0,8 C)0,4 D)–0,4 E)3

4. x; $-2,1$ va 3,3 sonlarining o'rta arifmetigi 0,2 ga teng. x ni toping. (96-01-10)
A)0,6 B)–0,6 C)0,8 D)2 E)–0,8

5. a; 2,1; 3 va 2,1 sonlarining o'rta arifmetigi 2,3 ga teng. a ning qiymatini toping. (01-08-24)
A)2,1 B)–2,6 C)3,4 D)2 E)3

6. Uchta sonning o'rta geometrigi 6 ga teng bo'lib, ulardan ikkitasi 8 va 9 bo'lsa, uchinchi son necha bo'ladi? (98-11-56)
A)3 B)7 C)–5 D)–3 E)4

7. Uchta sonning o'rta arifmetigi 10 ga, boshqa ikkita sonning o'rta arifmetigi esa 15 ga teng. Shu beshta sonning o'rta arifmetigini toping. (00-04-30)
A)10 B)11 C)12 D)13 E)14

8. Uchta sonning o'rta arifmetigi 30 ga, dastlabki ikkitasiniki esa 25 ga teng. Uchinchi sonni toping. (00-07-05)
A)44 B)40 C)45 D)38 E)36

9. N ta sonning o'rta arifmetigi 13 ga, boshqa M tasiniki - 28 ga teng. Shu $M+N$ ta sonning o'rta arifmetigini toping. (00-09-67)
A) $\frac{N}{M}$ B) $\frac{M+N}{41}$ C) $\frac{13N+28M}{M+N}$
D) $\frac{13M+28N}{M+N}$ E) $\frac{13N+28M}{M\cdot N}$

10. Uch sonning o'rta arifmetigi 20 ga, boshqa ikkita sonning o'rta arifmetigi 25 ga teng. Shu beshta sonning o'rta arifmetigini toping. 02-06-11
A)22,5 B)22,6 C)24 D)22 E)21

11. 24 ta sonning o'rta arifmetigi 11,5 ga teng. Bu sonlar qatoriga yana bir son qo'shib, o'rta arifmetik qiymat hisoblansa, u 12,5 ga teng bo'ladi. Qo'shilgan son nechaga teng? 02-01-33
A)36,5 B)30,5 C)25,5 D)28,5 E)50.5

12. 7 ta sonning o'rta arifmetigi 13 ga teng. Bu sonlarga qaysi son qo'shilsa, ularning o'rta arifmetigi 18 bo'ladi? 02-08-06
A)53 B)50 C)45 D)56 E)43

13. 13 ni 6 ga bo'lgandagi 7-xonadagi raqam bilan 11 ni 9 ga bo'lgandagi 15-xonadagi raqamlarning o'rta geometrigini toping. 02-01-04
A)$3\sqrt{2}$ B)$2\sqrt{3}$ C)$3\sqrt{5}$ D)2 E)3

14. Ikki musbat sonning o'rta geometrigi 8 ga va boshqa ikkita musbat sonning o'rta geometrigi 32 ga teng. Shu to'rtta sonning o'rta geometrigini toping. 01-09-31
A)12 B)16 C)15 D)14 E)13

15. 5 ta sonning o'rta arifmetigi 13 ga teng. Shu sonlarga qaysi son qo'shilsa ularning o'rta arifmetigi 19 ga teng bo'ladi? 03-05-07
A)49 B)40 C)46 D)54 E)38

16. 25 ta ketma-ket natural sonning yig'indisi 1000 ga teng. Bu sonlarning kichigi nechaga teng bo'ladi? 00-02-11
A)30 B)28 C)26 D)27 E)32

17. Bir son ikkinchi sondan 6 ta ortiq. Ularning o'rta arifmetigi 20 ga teng. Shu sonlardan kattasini toping. 98-01-12
A)23 B)27 C) 33 D)26 E)34

18. Bir son ikkinchisidan 15 ga kichik. Bu sonlarning o'rta arifmetigi 11,5 ga teng. SHu sonlardan kichigini toping. 98-08-12
A)3 B)3,5 C)4 D)7 E)8

19. Ikki natural son kvadratlarining o'rta arifmetigi 10 ga, o'rta geometrigi esa 8 ga teng. Shu sonlarning yig'indisini toping. 99-02-10
A)4 B)12 C)9 D)6 E)7

20. Agar a natural son hamda $a \in (9;17)$ bo'lsa. 6; 10 va a sonlarning o'rta arifmetigi quyida keltirilgan sonlardan qaysi biriga teng bo'ladi? 98-12-100
A)10 B)12 C)8 D)18 E)13

21. n soni 10; 12 va m sonlarning o'rta arifmetigidan 1,5 marta ko'p. m ni n orqali ifodalang 03-12-08
A)$2n-22$ B)$\frac{2}{3}n-22$ C)$4n-22$
D)$\frac{3}{2}n-12$ E) ifodalab bo'lmaydi

22. Uzunliklari har xil bo'lgan 8 ta yog'och berilgan. Ularning o'rtacha uzunligi 10 dm ga teng. Shu yog'ochlargsha yana bitta yog'och qo'shildi. Natijada ularning o'rtacha uzunligi 12 dm ga teng bo'ldi. Qo'shilgan yog'ochning uzunligini aniqlang. 98-04-47
A)18 B)22 C)32 D)28 E)26

23. 3,3: x va $-2,1$ sonlarning o'rta arifmetigi 0,6 ga teng. x ni toping. 2006
A)-0,6 B) 0,6 C)2 D) 0,8

3-§. Sonning butun qismi. Sonning moduli.

1. $\frac{65}{6}$ va $\frac{39}{8}$ kasrlar butun qismlarining o'rta arifmetigini toping. 99-06-59
A)7 B)6 C)8 D)5 E)4

2. $-\frac{21}{6}+2,(2)$ ning butun qismini toping. 02-10-40
A)-2 B)-1 C)0 D)1 E)2

3. $\sqrt{50}$ qiymatining butun qismini toping. 99-07-31
A)8 B)7 C)6 D)9 E)5

4. n raqamining qanday qiymatlarida $\sqrt{49+n}$ ning butun qismi 7 bo'ladi? 97-09-64
A)0; 1; 2 B)0; 1 C)3; 4; 5
D)hech qanday qiymatida
E)barcha qiymatlarida

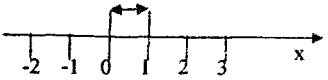
5. k raqamining qanday qiymatlarida $\sqrt{30+k}$ ning butun qismi 5 bo'ladi? 97-04-04
A)6; 7; 8; 9 B)0; 1; 2 C)1; 2; 3 D)5; 6 E)0 1; 2; 3; 4; 5

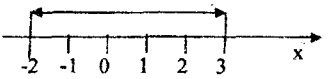
6. $[\sqrt{1}]+[\sqrt{2}]+[\sqrt{3}]+...+[\sqrt{10}]$ ni hisoblang. Bunda $[a]$ - a sonning butun qismi. 00-02-03
A)15 B)19 C)18 D)17 E)21

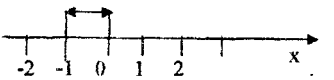
7. $[x^2]=9$ tenglamani yeching. 97-05-18
A)3 B)-3 C)$(-\sqrt{10};-3)\cup(3;\sqrt{10})$
D)$[-\sqrt{10};-3]\cup[3;\sqrt{10}]$
E) $(-\sqrt{10};-3]\cup[3;\sqrt{10})$

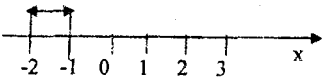
8. $[x^2]=36$ tenglamani yeching. 97-09-18
A)6 B)-6 C)$(-\sqrt{37};-6]\cup[6;\sqrt{37})$
D)$[-37;-6]\cup(6;\sqrt{37})$
E)$[-37;-6]\cup[6;37]$

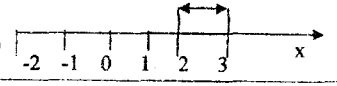
Agar $a=-2$ va $b=3$ bo'lsa, rasmda $|a-b|$ ga mos to'g'ri javobni ko'rsating.

A) 

B) 

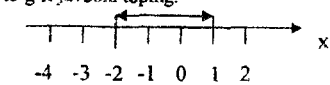
C) 

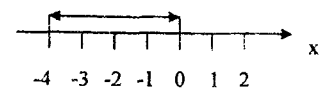
D) 

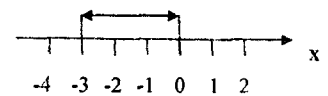
E) 

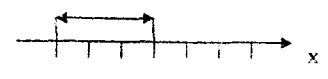
96-03-07

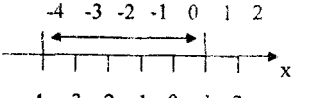
10. Agar $a=-4$ va $b=1$ bo'lsa, rasmda $|a-b|$ ga mos to'g'ri javobni toping.

A) 

B) 

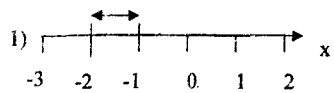
C) 

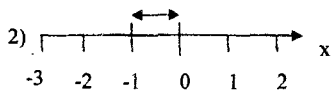
D) 

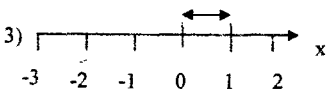
E) 

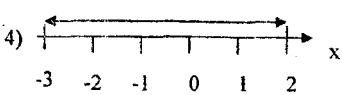
96-11-07

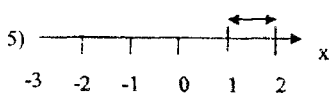
11. Agar $a=-3$ va $b=2$ bo'lsa, rasmda $|a-b|$ ga mos to'g'ri javobni ko'rsating.

1) 

2) 

3) 

4) 

5) 

A)1 B)2 C)3 D)4 E)5

96-12-07

12. Son o'qida – 4 dan 2,3 birlik masofada joylashgan sonlarni aniqlang.
A)– 6,3 B)– 6,3 va 1,7 C)6,3 va 1,7
D)– 6,3 va –1,7 E)–1,7

98-07-11

13. Son o'qida –2 dan 4,7 birlik masofada joylashgan sonlarni aniqlang.
A)–6,7; 2,7 B)–6,7; –2,7 C)6,7; 2,7
D)–6,7 E)–2,7

98-12-10

14. Son o'qida 4,2 sondan masofasi 17 dan oshmaydigan songacha bo'lgan oraliqda nechta butun son mavjud?
A)21 B)35 C)32 D)34 E) 33

03-10-20

15. $\dfrac{|4-5\cdot|4-6|+4|3-6||}{|3-4|7-5|}$ ni hisoblang.

A)1 B)$\frac{1}{2}$ C)$1\frac{2}{5}$ D)$\frac{5}{6}$ E)$1\frac{1}{5}$

98-05-09

16. $\dfrac{|4-4\cdot|3-6|-8|}{|4-|3-8|-7|}$ ni hisoblang.

A)2 B)1 C)3 D)4 E)2,5

99-07-11

17. $m=|8,(8)|$, $n=|-8,8|$, $p=|8\frac{7}{9}|$ va $q=|-8\frac{6}{7}|$ sonlarni kamayish tartibida yozing.

A) $n>m>p>q$ B) $m>n>p>q$
C) $m>q>n>p$ D) $q>m>n>p$
E) $q>n>m>p$

97-09-69

18. $m=|4,8|$; $n=|-4,(8)|$; $p=|4\frac{3}{4}|$ va $q=|-3,2|$ sonlarin kamayish tartibida yozing. 97-04-09
A) $n>m>p>q$ B) $m>n>p>q$
C) $m>p>q>n$ D) $p>m>q>n$
E) $m>p>n>q$

19. Agar $a>b>c$ bo'lsa, $|a-b|+|c-a|-|b-c|$ ni soddalashtiring. 96-06-14
A) $a-2b$ B) $2c$ C) $2a$ D) $2a-2b$ E) $b-2c$

20. Ikki sonning o'rta arifmetigi bu sonlarning kattasidan 12 ta kam. Bu sonlar ayirmasining moduli nechaga teng bo'ladi? 02-02-14
A)24 B)22 C)25 D)23 E)26

21. Agar $x<z<y$ bo'lsa, $|x-y|-|z-y|-|z-x|$ ni soddalashtiring. 2005
A) $2y-2x$ B)0 C) $2y-2z$ D) $2z-2y$

22. Agar $0<q<p<k$ bo'lsa, 2006
$|p+q|+|k-q|-|k-p|$ ni soddalashtiring.
A) $2p+2q-2k$ B) $2p$ C) $2p+2k$ D) $2q$

4-§. Bo'linuvchanlik.

1. Agar a toq son bo'lsa, quyidagi sonlardan qaysi biri albatta toq son bo'ladi? 98-12-70
A) a^2+27 B) $5(a+13)$ C) a^8
D) $\frac{a(a+3)}{2}$ E) $\frac{(a+1)(a+2)}{2}$

2. Agar $m\in N$ bo'lsa, quyidagi keltirilganlardan qaysi biri doimo juft bo'ladi? 03-02-69
A) $m(m+6)$ B) m^2+18m C) $\frac{m^2-16}{m+4}$
D) m^5+13m E) m^4+8

3. Agar $a\in N$ bo'lsa, quyidagi ifodalardan qaysi birining qiymati har doim butun son bo'ladi? 00-04-38
A) $\frac{a^2+1}{4}$ B) $\frac{a^2+a}{6}$ C) $\frac{a(a^2-1)}{6}$
D) $\frac{a-3}{5}$ E) $\frac{a^2-2}{3}$

4. $5n^3-5n$ ifoda istalgan natural n da quyidagi sonlardan qaysi biriga qoldiqsiz bo'linadi? 00-05-04
A)30 B)22 C)25 B)45 E)60

5. Agar x natural son bo'lsa, quyidagi sonlardan qaysi biri albatta juft son bo'ladi? 98-04-11
A) $\frac{x(x+1)(x+2)}{2}$ B) $\frac{x(x+1)(x+2)}{3}$ C) $\frac{x}{2}$
D) $\frac{x(x+1)(x+2)}{4}$ E) $\frac{x(x+1)(x+2)}{6}$

6. n $(n\in N)$ ning $\frac{5n^3+6n^2+7n}{n}$ kasr natural son bo'ladigan barcha qiymatlarini toping. 97-09-70
A)1; 2; 3 B) $n\in N$ C)1, 2; 3; 6
D)1; 2; 5 E)1; 2; 4; 8

7. $\frac{6n-12}{n}$ ifoda n ning nechta natural qiymatida natural son bo'ladi? 96-06-06
A)6 B)5 C)3 D)2 E)4

8. $\frac{12-3n}{n}$ ifoda n ning nechta natural qiymatida natural son bo'ladi? 97-02-06
A)6 B)3 C)5 D)4 E)2

9. $\frac{10n-24}{n}$ ifoda natural son bo'ladigan n ning natural qiymatlari nechta? 97-08-06
A)4 B)7 C)6 D)5 E) 4

10. $\frac{n^3-4n^2-12}{n}$ $(n\in N)$ kasrning barcha natural qiymatlari yig'indisini toping. 01-06-08
A)102 B)105 C)104 D)106 E)103

11. $\frac{n^2-12}{n}$ ifoda natural son bo'ladigan n ning barcha natural qiymatlari yig'indisini toping. 98-10-03
A)22 B)7 C)11 D)20 E)18

12. $nx=n^2-12$ tenglamaning ildizlari natural son bo'ladigan $n(n\in N)$ ning barcha qiymatlari yig'indisini toping. 00-01-08
A)20 B)18 C)22 D)16 E)24

13. $n(n\in N)$ ning $\frac{5n^4+4n^2+8}{n^2}$ kasr butun son bo'ladigan barcha qiymatlarini toping. 97-04-10
A)1 B)1; 2 C)2 D)1; 2; 4 E)2; 4

14. $\frac{16n^2-128}{n^2}$ ifoda natural son bo'ladigan n ning barcha natural qiymatlari nechta? 97-12-05
A)5 B)3 C)2 D)6 E)7

15. $\frac{2n-3}{n+1}$ ifoda n ning nechta natural qiymatida butun son bo'ladi? 98-01-11
A)4 B)3 C)2 D)1 E)hech bir qiymatida

16. $\frac{3n-1}{n+2}$ ifoda n ning nechta butun qiymatida natural son bo'ladi? 98-08-11
A)1 B)3 C)4 D)2 E)hech bir qiymatda

17. n ning nechta butun qiymatida $\frac{n^2-n+3}{n+1}$ kasr butun son bo'ladi? 01-07-07
A)1 B)2 C)3 D)4 E)6

18. $\frac{3n-1}{n+2}$ ifoda n ning nechta butun qiymatida natural son bo'ladi? 98-08-11
A)1 B)3 C)4 D)2 E)hech bir qiymatida

19. Agar $a \in N$ bo'lsa, quyidagi ifodalardan qaysi birining qiymati har doim butun son bo'ladi? 2006

A) $\frac{a^2+a}{6}$ B) $\frac{a^2+1}{4}$ C) $\frac{a-3}{5}$

D) $\frac{(a^2+a)(a+2)}{6}$

5-§. O'lchov birliklari va to'plamlar. Raqamlar yig'indisi.

1. 2 soat 30 minut 3 sekund necha sekund bo'ladi? 96-06-04
A)10203 B)8203 C)9003 D)9803 E)8993

2. 1 soat 160 minut 2 sekund necha sekunddan iborat? 97-08-04
A)106002 B)12202 C)14202 D)13202 E)13102

3. Ikki sutka necha sekunddan iborat? 00-04-12
A)136000 B)232400 C)126600 D)168800 E)172800

4. $3\ m^2\ 1\ dm^2\ 5\ sm^2$ necha sm^2 ga teng? 97-02-04
A)3015 B)3105 C)30015 D)31015 E)30105

5. $2\ m^2\ 3\ dm^2\ 4\ sm^2$ necha kvadrat santimetr bo'ladi? 97-12-04
A)2034 B)20244 C)21034 D)23004 E)20304

6. 1 dan 100 gacha bo'lgan sonlar orasida 2 ga ham, 3 ga ham bo'linmaydiganlar nechta? 96-03-22
A)33 B)30 C)32 D)21 E)19

7. 1 dan 100 gacha bo'lgan sonlar orasidagi 2 ga ham, 7 ga ham bo'linmaydigan nechta? 96-09-02
A)40 B)41 C)43 D)45 E)38

8. 1 dan 100 gacha bo'lgan sonlar orasida 2 ga ham, 5 ga ham bo'linmaydiganlari nechta? 96-12-60
A)35 B)40 C)41 D)32 E)34

9. 1 dan 100 gacha bo'lgan sonlar orasida 3 ga ham, 5 ga ham bo'linmaydiganlari nechta? 96-13-02
A)50 B)52 C)48 D)53 E)54

10. 30 kishidan 22 tasi o'yin to'garagida, 17 tasi esa xorda ashula aytadi. Necha kishi faqat o'yin to'garagiga qatnashadi? 03-10-34
A)aniqlab bo'lmaydi B)8 C)10 D)12 E)13

11. Ko'p qavatli uyda yashovchi aholining $\frac{1}{6}$ qismi shaxmat o'ynashni, $\frac{1}{4}$ qismi esa narda o'ynashni biladi. Shu uyda yashovchi aholining $\frac{2}{3}$ qismi hech qanday o'yin o'ynashni bilmaydi. Aholining qanday qismi ham shaxmat, ham narda o'ynashni biladi? 03-12-53
A) $\frac{1}{12}$ B) $\frac{1}{6}$ C) $\frac{2}{5}$ D) $\frac{1}{12}$ dan $\frac{1}{6}$ qismigacha
E) $\frac{1}{6}$ dan $\frac{1}{4}$ qismigacha

12. 30 ta turistdan 20 tasi ingliz tilini, 15 tasi fransuz tilini bilishadi. Shu turistlardan nechtasi ikkala tilni ham bilishadi? 03-12-54
A)5 B)10 C)15
D)5 tadan 10 tagacha E)5 tadan 15 tagacha

13. Ushbu 31323334 . . . 7980 sonning raqamlar yig'indisini toping. 96-03-80
A)473 B)480 C)460 D)490 E)453

14. Ushbu 21222324 . . . 6970 sonning raqamlari yig'indisi toping. 96-12-78
A)400 B)430 C)410 D)420 E)440

15. Ushbu 11121314 . . . 5960 sonining raqamlari yig'indisini toping. 96-13-21
A)380 B)370 C)360 D)400 E)390

16. Ushbu 1234567891011 ... 4950 sonning raqamlari yig'indisini toping. 96-09-21
A)335 B)330 C)320 D)315 E)310

17. Dastlabki 30 ga natural sonlar ichida 6 soni bilan o'zaro tub bo'lgan sonlar nechta? 01-12-01
A)7 B)8 C)9 D)10 E)11

18. Matematikadan yozma ish yozgan o'quvchilarning $\frac{1}{8}$ qismga a'lo, $\frac{1}{4}$ qismi yaxshi, $\frac{1}{2}$ qismi qoniqarli va qolgan 4 o'quvchi qoniqarsiz baho oldi. Nechta o'quvchi yozma ish yozgan? 02-12-23
A)28 B)32 C)26 D)24 E)29

1-§. Chiziqli tenglamalar.

1. $6,4\cdot(2-3x)=6\cdot(0,8x-1)+6,8$ tenglamani yeching. (96-07-03)
A)5 B)–0,5 C)0,5 D)–2 E)2,5

2. $0,7\cdot(6y-5)=0,4\cdot(y-3)-1,16$ tenglamani yeching. (97-03-03)
A)0,3 B)–3 C)–0,3 D)2 E)30

3. $0,9\cdot(4x-2)=0,5\cdot(3x-4)+4,4$ tenglamani yeching. (97-07-03)
A)1,2 B)2,5 C)–3 D)2 E)0,2

4. $2,8x-3(2x-1)=2,8-3,19x$ tenglamani yeching. (98-01-04)
A)–20 B)20 C)–2 D)200 E)0,2

5. $5,6-7(0,8x+1)=14-5,32x$ tenglamani yeching. (98-08-04)
A)5,5 B)55 C)–55 D)–5,5 E)50

6. $(360+x)\cdot 1002=731460$ dan x ni toping. (98-12-05)
A)370 B)270 C)470 D)730 E)1090

7. $4,5-1,6\cdot(5x-3)=1,2\cdot(4x-1)-15,1$ tenglamani yeching. (99-04-12)
A)20 B)2 C)0,2 D)0,5
E)to'g'ri javob keltirilmagan

8. $1,2\cdot(0,5-5x)+4,2=3\cdot(4-2,1x)$ tenglamaning ildizi -10 dan qancha katta? (03-11-62)
A)14 B)24 C)34 D)28 E)12,4

9. $\frac{3x-11}{4}-\frac{3-5x}{8}=\frac{x+6}{2}$ tenglamani yeching. (97-01-06)
A)5 B)–4,5 C)6,5 D)7 E)8

10. $6-\frac{x-1}{2}=\frac{3-x}{2}+\frac{x-2}{3}$ tenglamani yeching. (97-06-06)
A)4,5 B)8 C)17 D)11 E)14

11. $\frac{x-3}{6}+x=\frac{2x-1}{3}-\frac{4-x}{2}$ tenglamani yeching. (97-11-06)
A)3 B)2 C)–2 D)–4 E)Ø

12. $\frac{2x+3}{2}+\frac{2-3x}{3}=2,1(6)$ tenglamani yeching. (02-11-04)
A)0 B)2 C)–2 D)$-\frac{1}{2}$
E)cheksiz ko'p yechimga ega

13. $\frac{x}{3}-\frac{x+8}{6}=\frac{3x+2}{9}-\frac{x+11}{6}$ tenglamani yeching. (03-03-07)
A)–5 B)5 C)0 D)–4
E)cheksiz ko'p ildizga ega

14. $\frac{3x-2}{4}+\frac{2x+3}{2}-2,5x+2=0$ tenglamani yeching. (03-08-11)
A)0 B)4 C)10 D)–10 E)yechimlari cheksiz ko'p

15. $12\cdot\left(1\frac{3}{4}x+\frac{5}{8}\right)=-6\frac{1}{2}$ tenglamani yeching. (03-11-37)
A)$-\frac{1}{3}$ B)$-\frac{2}{3}$ C)$\frac{2}{3}$ D)$-\frac{13}{21}$ E)$\frac{3}{4}$

16. $(18\frac{1}{3}+x):3\frac{1}{7}=7$ tenglamani yeching. (96-07-07)
A)$4\frac{1}{3}$ B)$3\frac{2}{3}$ C)$3\frac{1}{3}$ D)$5\frac{2}{3}$ E)$4\frac{2}{3}$

17. $(x+2\frac{22}{25}):7\frac{1}{3}=3$ tenglamani yeching. (97-03-07)
A)$20\frac{22}{25}$ B)$19\frac{22}{25}$ C)$19\frac{3}{25}$
D)$18\frac{3}{25}$ E)$18\frac{28}{75}$

18. $(x+3\frac{2}{9}):4\frac{1}{6}=6$ tenglamani yeching. (97-07-07)
A)$22\frac{2}{9}$ B)$21\frac{7}{9}$ C)$22\frac{1}{3}$ D)$20\frac{4}{9}$ E)$21\frac{5}{6}$

19. $(3\frac{19}{22}+x):4\frac{1}{5}=5$ tenglamani yeching. (97-10-07)
A)$17\frac{19}{22}$ B)$18\frac{3}{22}$ C)$17\frac{3}{22}$ D)21 E)$18\frac{3}{11}$

20. $(2x+6\frac{6}{13}):3=4\frac{1}{3}$ tenglamani yeching. (99-04-09)
A)$3\frac{3}{13}$ B)$3\frac{19}{26}$ C)$3\frac{7}{26}$ D)$4\frac{3}{13}$ E)$4\frac{7}{26}$

21. $\frac{(x-12):\frac{3}{8}}{0,3\cdot3\frac{1}{3}+7}=1$ tenglamani yeching (99-08-11)
A)25 B)14 C)15 D)16 E)18

22. $\left(4\frac{3}{8}x+5\frac{1}{16}\right)\cdot\frac{4}{15}=\frac{5}{12}x+2\frac{2}{5}$ tenglamani yeching. (01-08-04)
A)$\frac{1}{15}$ B)$1\frac{2}{5}$ C)$\frac{3}{185}$ D)$2\frac{1}{5}$ E)$\frac{7}{15}$

23. $\left(1,7\cdot\left(1\frac{2}{3}\cdot x-3,75\right)\right):\frac{8}{25}=1\frac{5}{12}$ tenglamani yeching. (03-07-48)
A)5,2 B)$5\frac{3}{4}$ C)4 D)$4\frac{1}{3}$ E)4,5

24. $\left(\frac{0,\overline{(3)}+0,1\overline{(6)}}{0,(319)+1,\overline{(680)}}\right)\cdot x=8^{0,(6)}$ tenglamani yeching. (01-02-59)
A)4 B)32 C)2 D)1 E)16

25. $\frac{0,1(6)+0,(6)}{0,(3)+1,1(6)}(x+1)=0,3(8)x$ tenglamani yeching. 03-08-10
A)2,(6) B)–2,(6) C)3,(6) D)–3,(6) E)$-3,(3)$

26. $8(3^2+1)(3^4+1)(3^8+1)\ldots(3^{128}+1)x=3^{256}-1$ tenglamani yeching. 99-01-16
A)1 B)$\frac{1}{8}$ C)$\frac{1}{2}$ D)–1 E)2

27. $\frac{x}{3}+\frac{x}{15}+\frac{x}{35}+\frac{x}{63}+\frac{x}{99}+\frac{x}{143}=12$ tenglamani yeching. 02-03-16
A)26 B)13 C)18 D)16 E)24

28. a ning qanday qiymatida $a-9$ va $a-15$ lar qarama-qarshi sonlar bo'ladi? 02-01-37
A)9 B)10 C)12 D)15 E)16

29. $0,2\cdot(5y-2)=0,3\cdot(2y-1)-0,9$ tenglamani yeching. 97-10-03
A)2 B)0,2 C)–2 D)–1,2 E)$2\frac{1}{2}$

30. $(2\frac{19}{22}+x):4\frac{1}{5}=5$ tenglamani yeching. 2006
A)$18\frac{3}{22}$ B)$17\frac{19}{22}$ C)21 D)$17\frac{3}{22}$

31. $12\cdot\left(1\frac{3}{4}x+\frac{5}{8}\right)=\frac{1}{2}$ tenglamani yeching. 2006
A) $-\frac{2}{3}$ B)$-\frac{1}{3}$ C)$-\frac{13}{21}$ D)$\frac{2}{3}$

2-§. Proporsiyalar.

1. $2\frac{4}{5}:x=1\frac{2}{3}:2\frac{6}{7}$ proporsiyaning noma'lum hadini toping. 96-01-06
A)$\frac{1}{2}$ B)$\frac{2}{3}$ C)$4\frac{4}{5}$ D)$\frac{3}{5}$ E)$2\frac{1}{5}$

2. $6,9:4,6=x:5,4$ tenglamani yeching. 96-07-12
A)7,1 B)7,7 C)8,1 D)8,4 E)9,2

3. $3\frac{3}{5}:2\frac{7}{10}=3\frac{3}{4}:x$ proporsiyaning noma'lum hadini toping. 96-09-75
A)$2\frac{13}{16}$ B)$2\frac{3}{10}$ C)$3\frac{1}{3}$ D)$1\frac{15}{16}$ E)$1\frac{13}{18}$

4. $5\frac{5}{8}:7\frac{1}{2}=x:6\frac{2}{5}$ proporsiyaning noma'lum hadini toping. 93-10-06
A)$4\frac{4}{5}$ B)$3\frac{2}{5}$ C)$5\frac{1}{8}$ D)$4\frac{1}{5}$ E)$3\frac{3}{8}$

5. $3,5:x=0,8:2,4$ tenglamani yeching. 97-07-12
A)10,5 B)9,2 C)13,5 D)7,8 E)11,5

6. $5,4:2,4=x:1,6$ tenglamani yeching.
A)3,6 B)4 C)2,8 D)4,6 E)3,9

7. $0,25:1,4=0,75:x$ tenglamani yeching. 97-10-12
A)3,6 B)2,4 C)4,2 D)5,2 E)3,4

8. $1\frac{1}{12}x:2\frac{1}{12}=2\frac{3}{5}$ tenglamani yeching. 00-05-10
A)5 B)3 C)$1\frac{5}{12}$ D)4 E)$3\frac{2}{5}$

9. $x:2,0(6)=0,(27):0,4(09)$ tenglamani yeching. 01-12-30
A)1,3 B)1,37 C)1,(37) D)1,(32) E)1,3(7)

10. $12\frac{1}{2}:2\frac{1}{2}=16\frac{2}{3}:y$ tenglamani yeching. 03-11-55
A)$3\frac{1}{3}$ B)$3\frac{2}{3}$ C)$3\frac{1}{6}$ D)$3\frac{5}{6}$ E)$3\frac{1}{9}$

11. $420:(160-1000:x)=12$ dan x ni toping. 98-07-01
A)8 B)$\frac{1}{8}$ C)35 D)36 E)–8

12. $(\frac{1}{3}+x):7=(\frac{3}{4}+x):9$ tenglamani yeching. 98-07-13
A)$1\frac{3}{8}$ B)$1\frac{1}{8}$ C)$1\frac{5}{8}$ D)$1\frac{7}{8}$ E)$1\frac{1}{4}$

13. $(12,5-x):5=(3,6+x):6$ tenglamani yeching. 98-12-12
A)$5\frac{2}{11}$ B)$5\frac{3}{11}$ C)$5\frac{4}{11}$ D)$5\frac{1}{11}$ E)$5\frac{5}{11}$

14. $\frac{2\frac{2}{7}\cdot(-2,6)\cdot 3,5}{4}=\frac{\frac{4}{13}\cdot(-3,9)\cdot 3,25}{x}$ 03-04-01
proporsiyaning noma'lum hadini toping
A)0,68 B)0,7 C)0,75 D)0,78 E)0,74

5. Ikkki sonning yig'indisi 6,5 ga teng. Ulardan biri ikkkinchisidan 4 marta kichik. Shu sonlardan kattasini toping. 96-03-05
A) 5 B)5 D) 4 D)5,3 E)5,2

16 Ikki sonning yig'indisi 7 ga teng. Ulardan biri ikkinchisidan 4 marta katta bo'lsa, shu sonlarning kattasini toping. 96-11-05
A)5,2 B)6,2 C)5,6 D)5,4 E)4,8

17. Ikki sonning yig'indisi 4,8 ga teng. Ulardan biri ikkinchisidan 3 marta kichik. Shu sonlarning kichigini toping. 96-12-05
A)1,2 B)1,4 C)1,6 D)2,1 E)2,2

18. G'ildirak 7 minutda $12\frac{3}{5}$ marta aylanadi. U 1 minutda necha marta aylanadi? 97-09-08
A)$1\frac{4}{5}$ B)1 C)$1\frac{3}{5}$ D)$1\frac{2}{5}$ E)$1\frac{1}{5}$

19. Piyoda kishi 1 km yo'lni $\frac{2}{9}$ soatda o'tadi. U $\frac{3}{4}$ km yo'lni qancha soatda o'tadi? 98-07-12

A) $\frac{1}{5}$ B) $\frac{1}{6}$ C) $\frac{8}{27}$ D) $\frac{1}{4}$ E) $\frac{27}{8}$

20. Haritada 3,6 sm uzunlikdagi kesmaga 72 km masofa mos keladi. Agar haritada ikki shahar orasidagi masofa 12,6 sm bo'lsa, ular orasidagi masofa necha km? 00-05-11

A)240 B)244 C)246 D)250 E)252

21. Fermer dehqon 4 va 5 sonlariga proporsional yerga bug'doy va paxta ekdi. Agar 15 ga yerga paxta ekilgan bo'lsa, necha ga yerga bug'doy ekilgan? 00-05-19

A)16 B)10 C)8 D)14 E)12

22. Tiko avtomashinasida 100 km yo'lni o'tish uchun 5,8 L yonilg'i sarflanadi. 8,7 L yonilg'i bilan bu avtomashinada necha km yo'l yurish mumkin? 01-02-06

A)160 B)154,8 C)150 D)145,4 E)140

23. Kumush va misdan iborat qotishmaning og'irligi 2 kg. Kumushning og'irligi mis og'irligining $\frac{1}{7}$ qismini tashkil etadi. Qotishmadagi kumushning og'irligini toping. 01-11-04

A)310 g B)300 g C)270 g
D)250 g E)300 g

24. Toshbaqa 1 minutda 50 sm yo'l bosadi. U 0,1 km masofani qancha soatda o'tadi. 03-02-04

A) $2\frac{2}{3}$ B) $2\frac{1}{2}$ C) $3\frac{1}{3}$ D) $3\frac{1}{2}$ E) $3\frac{2}{3}$

25. y minutda x (mm) yomg'ir yog'adi. 2,5 soatda necha mm yomg'ir yog'adi? 03-12-11

A) $\frac{x}{150y}$ B) $\frac{xy}{150}$ C) $\frac{150x}{y}$ D) $\frac{150y}{x}$
E) $\frac{150}{xy}$

26. Poyezdda 936 yo'lovchi bor edi. Agar erkaklar bolalardan 7 marta ko'p bo'lsa, ayollar esa 5 marta ko'p bo'lsa, poyezdda qancha ayollar bo'lgan? 97-01-04

A)320 B)350 C)360 D)400 E)375

27. To'rtta sonning yig'indisi 128 ga teng. Agar birinchi va ikkinchi sonning nisbati 2:3 kabi, ikkinchi va uchinchi sonning nisbati 3.5 kabi va uchinchi va to'rtinchi sonning nisbati 5.6 kabi bo'lsa, birinchi va to'rtinchi sonning yig'indisini toping 99-02-05

A)60 B)62 C)66 D)68 E)64

28. Sinfda o'qiydigan o'g'il bolalar sonining barcha o'quvchilar soniga nisbati $\frac{4}{7}$ ga teng bo'lsa, qiz bolalar sonining o'g'il bolalar soniga nisbati nechaga teng bo'ladi? 02-03-04

A) $\frac{3}{4}$ B) $\frac{3}{5}$ C) $\frac{1}{2}$ D) $\frac{2}{5}$ E) $\frac{3}{7}$

29. a sonning b songa nisbati $\frac{2}{3}$ ga, c sonning b songa nisbati $\frac{1}{2}$ ga teng. c sonning a songa nisbati nechaga teng? 02-07-47

A) $\frac{3}{4}$ B) $\frac{5}{7}$ C) $\frac{5}{6}$ D) $\frac{2}{3}$ E) $\frac{4}{5}$

30. Uchta sonning nisbati 1:2:6 ga, ularning yig'indisi esa 459 ga teng. Shu sonlardan eng kattasi va eng kichigining ayirmasini toping. 03-04-06

A)245 B)255 C)235 D)275 E)265

31. $25\frac{1}{2}$ sonini 7; 8; 2 sonlariga mutanosib bo'laklarga bo'lgandagi eng kichik sonni toping. 03-08-21

A)3 B)4 C)5 D)3,5 E)2,7

32. Qotishma kumush va oltindan iborat bo'lib, o'zaro 3:5 nisbatda. Agar qotishmada 0,45 kg oltin bo'lsa, qotishmaning og'irligini (kg) toping. 03-08-25

A)0,72 B)0,21 C)1,21 D)0,8 E)0,9

33. 3591 sonini 1:0,3(8):1,(1):0,3(9):0,(72) kabi nisbatda bo'lganda hosil bo'ladigan eng katta sonni toping 03-08-28

A)1100 B)990 C)1000 D)1020 E)720

34. Sinfdagi qizlar sonining o'g'il bolalar soniga nisbati $\frac{5}{7}$ bo'lsa, sinfdagi jami o'quvchilar soni quyidagilarning qaysi biriga teng bo'lishi mumkin? 03-10-05

A)36 B)34 C)32 D)30 E)28

35. Sayohatchilar guruhidagi erkaklarning ayollar soniga nisbati 3:4 kabi. Quyida keltirilganlardan qaysi biri guruhdagi sayohatchilar soniga teng bo'la olmaydi? 01-10-11

A)28 B)21 C)23 D)35 E) 42

36. Xaritada ikki shahar orasidagi masofa 4,5 sm ga teng. Xaritadagi masshtab 1:2000000 bo'lsa, shaharlar orasidagi haqiqiy masofa necha km bo'ladi? 98-11-21

A)0,9 B)9 C)90 D)900 E)9000

37. Proporsiyaning dastlabki uchta hadi yig'indisi 28 ga teng. Uning ikkinchi hadi birinchi hadining $\frac{1}{2}$ qismini, uchinchi hadi esa $\frac{2}{3}$ qismini tashkil etadi. Proporsiyaning oxirgi hadini toping. 99-03-08

A) $4\frac{1}{13}$ B) $4\frac{2}{13}$ C) $4\frac{3}{13}$ D) $4\frac{4}{13}$ E) $4\frac{5}{13}$

38. Agar avtomobil tekis harakatda 3 soatda 324km ni bosib o'tsa, 20 sekundda necha metr masofani bosib o'tadi? 00-04-13

A)200 B)300 C)600 D)1000 E)1200

39. Sexda 120 ta samovar va 20 ta patnis yasalgan. Sarf qilingan hamma materialning 0,96 qismi samovarga ketgan. Agar har bir samovarning og'irligi 3,2 kg dan bo'lsa, har bir patnis necha kg bo'lgan? 00-05-12

A)0,8 B)0,04 C)7,68 D)0,768 E)0,4

40. 1 L dengiz suvida o'rtacha 0,00001 mg oltin bor. 1 km^3 dengiz suvida necha kg oltin bor? 00-05-24

A)0,1 B)0,01 C)1 D)10 E)100

41. Ikki shahar orasidagi masofa 200 km bo'lsa, 1:2000000 masshtabli haritada bu masofa necha mm ga teng bo'ladi? 00-10-17

A)100 B)10 C)20 D)40 E)200

42. 434 sonini 15 va 16 ga teskari proporsional sonlarga ajrating 01-02-12

A)150 va 284 B)224 va 210 C)192 va 242 D) 254 va 180 E)280 va 154

43. 100 soni shunday ikki musbat songa ajratilganki, ulardan biri 7 ga, ikkinchisi 11 ga bo'linadi. Bu sonlar ayirmasining moduli nimaga teng? 00-02-12

A)8 B)14 C)10 D)12 E)16

44. To'rtta sonning yig'indisi 40 ga teng. Shu sonlardan chetki hadlarining yig'indisi 18 ga va o'rta hadlarining ayirmasi 4 ga teng proporsiya tuzildi. Proporsiyaning chetki hadlari ko'paytmasini toping. 01-06-03

A)120 B)117 C)118 D)116 E)119

45. $a-2b$; 4; $a+3b$; 24 sonlar proporsiyaning ketma-ket hadlari bo'lsa, $\frac{a^2-b^2}{2ab}$ ifodaning qiymatini toping. 02-03-05

A) $\frac{4}{3}$ B)2 C)3 D) $\frac{8}{3}$ E) $\frac{7}{2}$

46. $a-3b$ va 3, $3b-a$ va 4 sonlar proporsiyaning ketma-ket hadlari bo'lsa, $\frac{a^2-b^2}{ab}$ kasrning qiymatini toping. 02-07-56

A) $\frac{8}{3}$ B) $\frac{7}{3}$ C) $\frac{6}{5}$ D) $\frac{9}{5}$ E)2

47. a soni b^2-3 bilan to'g'ri proporsional. $b=5$ bo'lganda, $a=88$ bo'lsa, $b=-3$ bo'lganda, a soni nechaga teng bo'ladi? 03-05-08

A)24 B)6 C)18 D)12 E)36

48. Agar A, B, C va D sonlarning nisbati 2:3:4:5 kabi bo'lsa, $\frac{A+B}{C+D}$ ning qiymatini aniqlang. 00-04-25

A) $\frac{1}{2}$ B) $\frac{3}{4}$ C) $\frac{5}{9}$ D) $\frac{9}{5}$ E)aniqlab bo'lmaydi.

49. Chumoli 5 minutda $15\frac{5}{6}$ m yuradi. U 1 minutda necha metr yuradi? 97-05-08

A) $3\frac{5}{6}$ B) $15\frac{1}{6}$ C) $3\frac{1}{6}$ D)3 E)4

50. Avtomashina bakiga 60 l benzin quyildi. Toshkent dengiziga borish uchun bakdagi benzinning $\frac{2}{5}$ qismi, Chirchiqqa borish uchun $\frac{1}{12}$ qismi sarflandi. Bakda necha litr benzin qolgan? 97-05-11

A)30 B)31 C)25 D)26 E)27

51. Avtomashina bakiga 70 litr benzin quyildi. Gulistonga borish uchun benzinning $\frac{2}{5}$ qismi, Chimyonga borish uchun esa $\frac{3}{7}$ qismi sarflandi. Bakda necha litr benzin qolgan? 97-09-11

A)13 B)15 C)18 D)20 E)12

3-§. Chiziqli tenglamalar sistemasi.

1. $\begin{cases}2x-3y=3\\x+2y=5,\end{cases}$ $x-?$ 96-03-76

A)1 B)2 C)3 D)−2 E)−1

2. $\begin{cases}3x-4y=3\\x+2y=1\end{cases}$, $y-?$ 96-09-17

A)1 B)0 C)−1 D)2 E)−2

3. $\begin{cases}2x-3y=3\\x+2y=5,\end{cases}$ $y-?$ 96-12-71

A)2 B)1 C)3 D)1,5 E)−1

4. $\begin{cases}3x+4y=11\\5x-2y=1.\end{cases}$ $x=?$ 98-03-16

A)2 B) $\frac{3}{2}$ C) $\frac{5}{2}$ D)1 E)−1

5. $\begin{cases}3x-4y=11,\\5x-2y=1.\end{cases}$ $y=?$ 98-10-64

A)0 B)1 C)2 D)−2 E) 1

6. $\begin{cases} x+y=5 \\ x-y=1 \end{cases}$ tenglamalar sistamasini qanoatlantiruvchi sonlar juftligini aniqlang. 96-03-24
A)(2; 3) B)(3; 2) C)(−2; 3)
D)(−2; −3) E)(−3; 2)

7. Quyidagi juftliklardan qaysi biri $\begin{cases} x+y=5 \\ x-y=-1 \end{cases}$ tenglamalar sistemasini qanoatlantiradi? 96-11-25
A)(2;3) B)(1;4) C)(4;1) D)(3;2) E)(5;6)

8. Quyidagi sonlarning qaysi jufti $\begin{cases} x+y=7 \\ x-y=-1 \end{cases}$ tenglamalar sistemasini qanoatlantiradi? 96-12-25
A)(4; 3) B)(1; 6) C)(2;5) D)(5;2) E)(3, 4)

9. $\begin{cases} 2x+3y=7 \\ 4x+6y=14 \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 03-06-41
A)1 B)2 C)yechimga ega emas
D)to'g'ri javob yo'q
E)cheksiz ko'p yechimga ega

10. $(x; y)$ sonlar jufti $\begin{cases} 2x-y=5 \\ 3x+2y=4 \end{cases}$ sistemaning yechimi bo'lsa, $x-y$ ni toping. 96-01-21
A)1 B)−1 C)3 D)0 E)5

11. Agar $\begin{cases} y-3x=-5 \\ 5x+2y=23 \end{cases}$ bo'lsa, x^2+y^2 ning qiymatini toping. 96-07-21
A)16 B)25 C)9 D)10 E)36

12. $(x; y)$ sonlar jufti $\begin{cases} 2x-3y=5 \\ 3x+y=2 \end{cases}$ sistemaning yechimi bo'lsa, $x+y$ ni toping. 96-10-22
A)3 B)−3 C)4 D)−1 E)0

13. $\begin{cases} 3x-4y=3 \\ x+2y=1, \end{cases}$ $x-y=?$ 96-13-17
A)−1 B)3 C)2 D)−2 E)1

14. $(x; y)$ sonlar jufti $\begin{cases} 2x+y-8=0 \\ 3x+4y-7=0 \end{cases}$ tenglamalar sistemasining yechimi bo'lsa, xy ni toping. 97-01-11
A) −90 B)12 C) −10 D)80 E) −16

15. Agar $\begin{cases} 5x+2y=-3 \\ x-3y=-4 \end{cases}$ bo'lsa, x^2-y^2 ning qiymatini toping. 97-03-21
A)2 B)1 C)0 D)2,5 E) −2

16. $(x; y)$ sonlar jufti $\begin{cases} x+2y-3=0 \\ 2x-3y+8=0 \end{cases}$ tenglamalar sistemasini yechimi $x+y$ ni hisoblang 97-06-13
A) −1 B)1 C)3 D)1,5 E)0,5

17. Agar $\begin{cases} 3x-2y=1 \\ 4x-y=-2 \end{cases}$ bo'lsa, x^2-y^2 ning qiymatini toping. 97-10-21
A)−1 B)−3 C)3 D)5 E)2

18. Agar $\begin{cases} 6x-2y-6=0 \\ 5x-y-17=0 \end{cases}$ bo'lsa, $y-x$ ning qiymatini toping. 97-11-11
A)11 B)−9 C)−25 D)25 E)18

19. $\begin{cases} \frac{x}{4}+\frac{y}{4}=2 \\ \frac{x}{6}+\frac{y}{3}=2 \end{cases}$ tengiamalar sistemasini yeching. 98-12-31
A)(4; 4) B)(−4; −4) C)(−4; 4) D)(4; −4)
E)cheksiz ko'p yechimga ega

20. $\begin{cases} \frac{x+y}{2}-\frac{2y}{3}=\frac{5}{2} \\ \frac{3x}{2}+2y=0 \end{cases}$ tenglamalar sistemasini yeching. 98-07-33
A)(−4; 3) B)(4; 3) C)(3; −4) D)(4; −3)
E)yechimga ega emas

21. $\begin{cases} \frac{2x+6y}{y}=32 \\ \frac{x-2y}{y}=11 \end{cases}$ sistema nechta yechimga ega? 00-04-08
A)0 B)1 C)2 D)3 E)cheksiz ko'p

22. Agar $3x+y=45$, $z+3y=-15$ va $3z+x=6$ bo'lsa, $x+y+z$ nimaga teng? 96-08-17
A)12 B)10 C)15 D)9 E)7

23. Agar $2m+n=2$; $2n+p=6$ va $2p+m=4$ bo'lsa, $m+n+p$ ni toping. 97-08-17
A)6 B)4 C)5 D)3 E)8

24. Agar $2q-4p=-9$, $2t-4q=-7$ va $2p-4t=2$ bo'lsa, $p+q+t$ ning qiymatini toping. 97-12-16
A)−7 B)8 C)7 D)−8 E)6

25. Agar $x+y+z=6$, $x-y+z=4$ va $z+y-x=0$ bo'lsa, xyz ning qiymatini toping. 01-06-11
A)5 B)7 C)4 D)8 E)6

26. Agar $3a-b=7$, $b-c=5$ va $3c-a=2$ bo'lsa, $a+c$ ni toping. 97-02-17
A)10 B)14 C)8 D)6 E)7

27. Agar $3a+4b=16$ va $2c-b=1$ bo'lsa, $3a+8c$ ning qiymatini toping. 00-04-39
A)18 B)4 C)20 D)23
E)aniqlab bo'lmaydi

28. $a=4b$ va $c+3b=0$ $(b\neq 0)$ bo'lsa, $\frac{a}{c}$ ni toping. 97-04-07
A) $-\frac{1}{3}$ B) $1\frac{1}{3}$ C) $1\frac{2}{3}$ D) $-1\frac{1}{3}$ E) $-\frac{2}{3}$

29. Ikki sonning yig'indisi 51 ga, ayirmasi esa 21 ga teng. Shu sonlarni toping. (98-12-30)
A)36; 15 B)35; 16 C)37; 14 D)34; 17 E)33; 18

30. Nechta butun x va y sonlar jufti $x^2 - y^2 = 31$ tenglikni qanoatantiradi? (01-10-08)
A)0 B)1 C)2 D)3 E)4

31. 30 so'mlik va 35 so'mlik daftarlardan jami 490 so'mlik xarid qilindi. Quyida keltirilgan sonlardan qaysi biri 30 so'mlik daftarlar soniga teng bo'lishi mumkin? (01-10-10)
A)5 B)6 C)7 D)8 E)9

32. Qizil qalam 11 so'm, ko'k qalam esa 13 so'm turadi. O'quvchi 190 so'mga ko'k va qizil qalamlar sotib oldi. Quyida keltirilganlardan qaysi biri xarid qilingan ko'k qalamlarning soniga teng bo'la olishi mumkin? (01-10-12)
A)5 B)6 C)7 D)8 E)9

33. Nechta $(x; y)$ butun sonlar jufti $(x+1)(y-2) = 2$ tenglikni qanoatlantiradi? (99-08-13)
A)4 B)2 C)1 D)3 E)5

34. $(x; y)$ sonlar jufti $\begin{cases} 3x - 2y = -8 \\ x + 3y = 1 \end{cases}$ sistemaning yechimi bo'lsa, $y - x$ ni toping. (96-09-72)
A)0 B)1 C)2,5 D)1 E)3

35. Agar $\begin{cases} 2x + 3y = 3 \\ x - 2y = 5 \end{cases}$ bo'lsa, $x^2 + y^2$ ning qiymatini toping. (97-07-21)
A)2 B)4 C)8 D)10 E)13

36. Agar $ab = 9$ va $3b = 8c$ $(b \neq 0)$ bo'lsa, ac ni hisoblang. (97-09-67)
A) $3\frac{1}{3}$ B) $3\frac{5}{8}$ C) $3\frac{4}{9}$ D) $3\frac{5}{7}$ E) $3\frac{3}{8}$

4-§. Chiziqli tengsizliklar. Chiziqli tengsizliklar sistemasi.

1. $1 - \frac{17 - 3x}{2} > 1{,}5x$ tengsizlikni yeching. (00-06-10)
A)$(-2{,}5; 0)$ B)$(-\infty; -2{,}5)$ C)$(-\infty; 0)$ D)$x \in R$ E)$\varnothing$

2. $\frac{2x-7}{6} + \frac{7x-2}{3} < 3 - \frac{1-x}{2}$ tengsizlikning butun sonlardan iborat yechimlaridan eng kattasini ko'rsating. (03-11-64)
A)2 B)-1 C)1 D)0 E)-2

3. $\begin{cases} -2x < 22 \\ x + 4 < 8 \end{cases}$ tengsizliklar sistemasining eng katta butun yechimini toping. (96-06-16)
A)4 B)3 C)-11 D)-12 E)-10

4. $\begin{cases} 5x - 2 \geq 2x + 1 \\ 2x + 3 \leq 18 - 3x \end{cases}$ tengsizliklar sistemasi butun yechimlarining o'rta arifmetigini toping. (97-01-14)
A)3 B)2,5 C)2 D)1,5 E) $1\frac{2}{3}$

5. $\begin{cases} x + 8 < 12 \\ -3x < 15 \end{cases}$ tengsizliklar sistemasining eng kichik butun yechimini toping. (97-02-16)
A)-5 B)-3 C)-6 D)-4 E)3

6. $\begin{cases} 7x + 3 \leq 9x - 1 \\ 20 - 3x \geq 4x - 15 \end{cases}$ tengsizliklar sistemasi butun yechimlarining o'rta arifmetigini toping. (97-06-14)
A)3,5 B)7 C)4 D)3 E) $4\frac{1}{3}$

7. $\begin{cases} -4y < 12 \\ y + 6 < 6 \end{cases}$ tengsizliklar sistemasining barcha butun yechimlari ko'paytmasini toping. (97-08-16)
A)2 B)6 C)-6 D)-2 E)0

8. $\begin{cases} 2x - 1 \geq 3x - 4 \\ 8x + 7 > 5x + 4 \end{cases}$ tengsizliklar sistemasi butun yechimlarining o'rta arifmetigini toping. (97-11-14)
A)2 B)2,5 C)1,5 D)0,75 E)3

9. $\begin{cases} -2x > -26 \\ x - 3 > 1 \end{cases}$ tengsizliklar sistemasining eng katta va eng kichik butun yechimlari yig'indisini toping. (97-12-15)
A)17 B)16 C)18 D)19 E)15

10. $\begin{cases} x + 1 < 2x - 4 \\ 3x + 1 < 2x + 10 \end{cases}$ tengsizliklar sistemasining butun yechimlari yig'indisini toping. (98-03-15)
A)9 B)5 C)20 D)21 E)19

11. $\begin{cases} 2x - 3 < 17 \\ 4x + 6 > 8 \end{cases}$ sistemaning eng katta butun va eng kichik butun yechimlari yig'indisini toping. (98-10-40)
A)8 B)11 C)12 D)9 E)10

12. $\begin{cases} -x - 5 < -2x - 2 \\ -2x + 2 > 3 - 3x \end{cases}$ tengsizliklar sistemasining butun yechimlari yig'indisini toping. (98-10-63)
A)0 B)1 C)2 D)3 E)4

13. $\begin{cases} 2x - 3 \leq 17, \\ 14 + 3x > -13 \end{cases}$ tengsizlikning eng katta butun yechimi eng kichik butun yechimidan qanchaga katta? (99-09-24)
A)17 B)19 C)16 D)12 E)18

14. $\begin{cases} 2x+5 \ge x+7, \\ 3x-4 \le 2x+4 \end{cases}$ tengsizliklar sistemasining eng katta va eng kichik yechimlarining o'rta proporsional qiymatini toping. 99-10-12
A)2 B)10 C)4 D)6 E)8

15. $\begin{cases} 3+4x \ge 5 \\ 2x-3(x-1) > -1 \end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega? 96-01-22
A)5 B)3 C)4 D)2 E)6

16. $\begin{cases} 3-4x > 5 \\ 2+3(x-1) \le 4x+3 \end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega? 96-09-73
A)1 B)2 C)4 D)6 E)3

17. $\begin{cases} 2-3x > 1 \\ 5x+1 \ge 3(x-2) \end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega? 96-10-23
A)4 B)5 C)3 D)8 E)2

18. $\begin{cases} \frac{y-5}{4} < \frac{2y+3}{3} \\ \frac{4y+1}{2} < \frac{y-4}{3} \end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega? 98-01-22
A)6 B)5 C)4 D)3 E)1

19. $\begin{cases} \frac{x-1}{4} \le \frac{x}{5} \\ \frac{x}{3} > \frac{x+4}{7} \end{cases}$ tengsizliklar sistemasi butun yechimlarining yig'indisini toping. 98-07-37
A)12 B)9 C)7 D)8 E)1

20. $\begin{cases} \frac{y+3}{2} \le \frac{y-5}{3} \\ \frac{y+1}{4} > \frac{y-4}{5} \end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega? 98-08-22
A)5 B)4 C)3 D)2 E)1

21. $\begin{cases} 0,4(2x-3) > x-2 \\ 3x-7 \ge x-6 \end{cases}$ tengsizliklar sistemasining butun yechimlari yig'indisini aniqlang 98-11-25
A)10 B)5 C)6 D)8 E)8

22. $\begin{cases} \frac{x-1}{2} < \frac{x}{3} \\ \frac{x+1}{2} \ge \frac{x}{5} \end{cases}$ tengsizliklar sistemasi butun yechimlarining yig'indisini toping. 98-12-35
A)2 B)3 C)-1 D)-3 E)1

23. $\begin{cases} \frac{x+5}{4} - 2x \ge 0, \\ x - \frac{2x-8}{5} \ge 1-2x \end{cases}$ tengsizliklar sistemasining eng katta butun yechimini ko'rsating. 99-04-14
A)-1 B)1 C)2 D)-2 E)0

24. $\begin{cases} \frac{3x-2}{4} > \frac{1-5x}{6} \\ 3x-1 \le 3-2x \end{cases}$ tengsizliklar sistemasini yeching. 01-08-14
A) $\left(\frac{8}{19};\infty\right)$ B) $\left(\frac{8}{19};\frac{4}{5}\right]$ C) $\left(-\infty;\frac{4}{5}\right)$
D) $x \in R$ E)$\varnothing$

25. $\begin{cases} x(x+1)+10 > (x+1)^2+3 \\ 3x-4(x-7) \ge 16-3x \end{cases}$ tenglamalar sistemasini yeching. 96-07-25
A)[-3;5) B)(2;4] C)[-6;6) D)[6;∞) E)$\varnothing$

26. $\begin{cases} 2x-3(x-5) > 10-3x \\ x(x+2)-4 \le (x-1)^2+7 \end{cases}$ tengsizliklar sistemasini yeching. 97-03-25
A)[2; 12,5) B)[2,5; ∞) C)[-3; 2)
D)(-2,5; 3] E)yechimga ega emas

27. $\begin{cases} 3x+7 \ge 5(x+1)+6 \\ (x-2)^2-8 < x(x-2)+10 \end{cases}$ tengsizliklar sistemasini yeching. 97-07-25
A)(-11;2] B)[-2;7) C)(-7;-2]
D)[2;11) E)(-∞;-7)

28. $\begin{cases} 4(x-3)-3 > 8x+1 \\ 2+x(x+3) \le (x+2)^2+5 \end{cases}$ tengsizliklar sistemasini yeching. 97-10-25
A)(4; 7] B)(-∞; -7) C)(-4; ∞)
D)[-7; -4) E)$\varnothing$

29. $\begin{cases} 12x^2-(2x-3)(6x+1) > x \\ (5x-1)(5x+1)-25x^2 \ge x-6 \end{cases}$ tengsizliklar sistemasining butun sonlardan iborat yechimlari yig'indisini toping. 03-03-09
A)6 B)7 C)9 D)12 E)15

30. $\begin{cases} (x+2)(2-x) < (x+3)(4-x) \\ \frac{3+x}{4} + \frac{1-2x}{6} \ge 1 \end{cases}$ tengsizliklar sistemasining butun sonlardan iborat yechimlari nechta? 03-11-66
A)7 B)8 C)6 D)9 E)12

31. $-4 < 2-4x < -2$ qo'shtengsizlikni yeching 98-08-06
A)(-1,5; -1) B)(1; 2) C)(0; 1)
D)(1; 1,5) E)(-1,5; 0)

32. $6798:103 < 54+6x < 9156:109$ tengsizlikning barcha natural yechimlarini toping. 98-01-01
A)2; 3; 4 B)4; 5; 6 C)3; 4 D)4; 5 E)3; 4; 5

33. $-3 < 2-5x < 1$ qo'sh tengsizlikni yeching. 98-01-06
A)(–1; 0,2) B)(–1; –0,2) C)(–0,2; 1)
D)(0,2; 1) E)(1; 2)

34. m ning qanday qiymatlarida $\begin{cases} x-y=m-1 \\ 2x-y=3-m \end{cases}$ tenglamalar sistemasining yechimi musbat bo'ladi? 01-07-15
A)$\left(\frac{5}{3};2\right)$ B)$\left(-\infty;\frac{5}{3}\right)\cup(2;\infty)$ C)(2; ∞)
D)$\left(-\infty;\frac{5}{3}\right)$ E)(–∞; ∞)

35. $\begin{cases} 4x-1>x \\ x+6>2x+1 \end{cases}$ tengsizliklar sistemasining barcha butun yechimlari yig'indisini aniqlang. 01-01-67
A)8 B)10 C)12 D)14 E)16

36. $\frac{1-x}{2}+3<3x-\frac{2x+1}{4}$ tengsizlikni yeching. 01-08-10
A)$\left(1\frac{1}{3};\infty\right)$ B)$\left(1\frac{1}{13};\infty\right)$ C)$\left(-\infty;\frac{1}{4}\right)$
D)(1,5; ∞) E)$\left(1\frac{1}{4};\infty\right)$

37. $\begin{cases} 2x-4>x+1 \\ 3x+1<2x+11 \end{cases}$ tengsizliklar sistemasining butun yechimlarining yig'indisini toping. 2006
A)5 B)30 C)21 D)20

5-§. Chiziqli funksiya va uning grafigi.

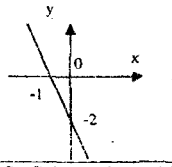
1. k ning qanday qiymatida $y=kx+6$ funksiyaning grafigi $M(0,5; 4,5)$ nuqtadan o'tadi? 96-07-16
A)3 B)–3 C)–2 D)4 E)–30

2. Quyidagi nuqtalardan qaysi biri $f(x)=-3x+4$ funksiyaning grafigiga tegishli? 96-03-15
A)(3; –5) B)(–3; 5) D)(5; –3) D)(2; 4) E)(4; 2)

3. Quyidagi nuqtalarning qaysi biri $f(x)=-4x+3$ funksiyaning grafigiga tegishli? 96-12-16
A)(–1; 1) B)(2; 5) C)(–5; 2)
D)(1; –1) E)(0; –3)

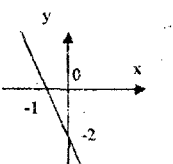
4. k ning qanday qiymatida $y=kx^2-2$ funksiyaning grafigi A(–1; 1) nuqtadan o'tadi? 97-03-16
A)4 B)–3 C)3 D)2 E)–1

5. Grafigi rasmda tasvirlangan funksiyaning qiymatlari x ning qanday qiymatlarida manfiy bo'lishini tengsizlik yordamida ifodalang. 96-03-23



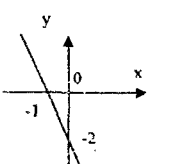
A)$x>0$
B)$x\ge 0$
C)$x\ge -1$
D)$x>-1$
E)$x\le -1$

6. Grafigi rasmda tasvirlangan funksiyaning qiymatlari x ning qanday qiymatlarida -2 dan kichik bo'lmaydi? 96-11-24



A)$x<0$ B)$x>0$
C)$x\ge 0$ D)$x\le 0$
E)$x>-1$

7. Grafigi rasmda tasvirlangan funksiyaning qiymatlari x ning qanday qiymatlarida -2 dan kichik bo'ladi? 96-12-24



A)$x\ge 0$
B)$x>0$
C)$x<0$
D)$x\le 0$
E)$x>-1$

8. $y=kx+l$ ($k<0$ va $l<0$) funksiyaning grafigi qaysi choraklarda joylashgan? 97-08-13
A)I; II va III B)I; III va IV C)II va IV
D)II; III va IB E) I; II va IV

9. Agar $k>0$ va $l<0$ bo'lsa, $y=kx+l$ funksiyaning grafigi qaysi choraklardan o'tadi? 97-12-12
A)I, II va IV B)III va IV C)II, III va IV
D)I, II va III E)I, III va IV

10. Agar $k<0$ va $l>0$ bo'lsa, $y=kx+l$ funksiya grafigi koordinatalar tekisligining qaysi choraklarida joylashgan? 96-06-13
A)I, II B)I, II,III C)II, I, IV D)I, III, IV
E)II, III, IV

11. Agar $k>0$ va $l>0$ bo'lsa, $y=kx+l$ funksiyaning grafigi koordinatalar tekisligining qaysi choragida joylashadi? 97-02-13
A)I, II va III B)I va II C)I, II va IV D)II, III va IV E)I, II va IV

12. $x+y=1$ tenglama bilan berilgan to'g'ri chiziqqa parallel to'g'ri chiziqni toping. 99-01-46
A)$2x+2y-3=0$ B)$y=x-1$ C)$x-y=2$
D)$y=x+1$ E)$y=-\frac{1}{2}x+1$

13. A(−2, 5) nuqtadan $5x-7y-4=0$ to'g'ri chiziqqa parallel ravishda o'tuvchi to'g'ri chiziqning tenglamasini ko'rsating. 00-05-68
A) $3x-4y+35=0$ B) $3x+4y-35=0$
C) $5x-7y-45=0$ D) $5x-7y+45=0$
E) $4x-5y+45=0$

14. A(3; 1) nuqtadan o'tuvchi va $y=2x-3$ to'g'ri chiziqqa parallel bo'lgan to'g'ri chiziqning tenglamasini yozing. 01-02-51
A) $y=2x-1$ B) $y=2x-5$
C) $y=3x-2$ D) $y=2x-4$
E) $y=x-5$

15. A(−1; 7) va B (3; 3) nuqtalar orqali o'tuvchi to'g'ri chiziqqa parallel va C(1;3) nuqtadan o'tuvchi to'g'ri chiziq tenglamasini tuzing. 01-02-53
A) $y=-x+4$ B) $y=2x+4$
C) $y=-x-4$ D) $y=-2x+4$
E) $y=-2x-4$

16. $2y=2x+3$ to'g'ri chiziqning Ox o'qi bilan hosil qilgan burchagmi toping. 99-01-47
A)45° B)30° C)60° D)75° E)135°

17. Quyidagi nuqtalarning qaysi biri $f(x)=-2x+5$ funksiyaning grafigiga tegishli? 96-11-16
A)(1; 2) B)(2; 1) C)(3; 1) D)(2; 3) E)(1; −3)

18. k ning qanday qiymatida $y=kx-10$ funksiyaning grafigi $A(-4;\ 14)$ nuqtadan o'tadi? 99-06-04
A)−2 B)−1 C)−6 D)−3 E)−4

6-§. Parametrli misollar.

1. m va n ning qanday qiymatlarida $2xm-3yn=12$ va $3xm+2ny=44$ to'g'ri chiziqlar $(1;2)$ nuqtada kesishadi? 01-12-40
A) $m=10,\ n=4$ B) $m=8,\ n=6$
C) $m=4,\ n=10$ D) $m=12,\ n=2$
E) $m=7,\ n=7$

2. m ning qanday qiymatlarida $my+1=m$ tenglama yechimga ega bo'lmaydi? 96-01-20
A) $m=1$ B) $m=0$ C) $m=-1$
D) $m=2$ E) $m\in R$

3. a ning qanday qiymatlarida $ax=2x+3$ tenglama yechimga ega bo'lmaydi? 96-09-71
A) $a\neq 1$ B) $a=2$ C) $a\neq 2$ D) $a\neq -2$ E) $a=0$

4. a ning qanday qiymatlarida $ax-3=a+2x$ tenglamaning yechimi bo'lmaydi? 97-03-22
A) $a=0$ B) $a=2$ C) $a=-1$
D) $a=-2$ E) $a\in\varnothing$

5. m ning qanday qiymatlarida $mx-m=x+1$ tenglamaning ildizlari cheksiz ko'p bo'ladi? 97-07-22
A) $m=1$ B) $m=0$ C) $m=-1$
D) $m=-1$ E) $m\in\varnothing$

6. a ning qanday qiymatlarida $ax-a=x-1$ tenglama cheksiz ko'p yechimga ega bo'ladi? 96-07-22
A) $a=1$ B) $a=2$ C) $a=-1$ D) $a\in R$
E) $a\in\varnothing$

7. n ning qanday qiymatlarida $nx+1=n+x$ tenglama cheksiz ko'p yechimga ega bo'ladi? 96-10-21
A) $n=0$ B) $n=1$ C) $n=2$
D) $n\neq 1$ E) $n=-2$

8. n ning qanday qiymatlarida $nx+5=n-2x$ tenglamaning ildizi bo'lmaydi? 97-10-22
A)5 B)-2 C)1 D)-5
E)bunday qiymatlar yo'q.

9. m ning qanday qiymatlarida $m(mx-1)=9x+3$ tenglama cheksiz ko'p ildizga ega? 98-01-20
A) $m=0$ B) $m=3$ C) $m=-3$
D) $m=1$ E) $m\in\varnothing$

10. $10(ax-1)=2a-5x-9$ tenglama a ning qanday qiymatlarida yagona yechimga ega? 98-07-30
A) $(-\infty;-\frac{1}{2})\cup(-\frac{1}{2};\infty)$ B) $-\frac{1}{2}$ C) $\frac{1}{5}$
D) $(-\infty;-\frac{1}{2})$ E) $(-\frac{1}{2};\infty)$

11. n ning qanday qiymatida $n^2(y-1)=y-n$ tenglamaning ildizi yo'q? 98-08-20
A) $n=0$ B) $n=1$ C) $n=-1$ D) $n=2$
E) $n=1$ va $n=-1$

12. $10(ax-1)=2a-5x-9$ tenglama a ning qanday qiymatlarida cheksiz ko'p yechimga ega? 98-12-28
A) $-\frac{1}{2}$ B)2 C) $\frac{1}{2}$ D)-2 E) $\frac{1}{5}$

13. $6x-a-6=(a+2)(x+2)$ tenglama a ning qanday qiymatlarida yechimga ega emas? 99-08-21
A)4 B)2 C)−2 D)6 E)−6

14. $\frac{2kx+3}{3}-\frac{k-2+x}{2}$ tenglama k ning qanday qiymatida yechimga ega emas. 00-02-16
A) $\frac{3}{4}$ B) $\frac{2}{5}$ C) $\frac{1}{4}$ D)1 E) $\frac{3}{5}$

15. k ning qanday qiymatida $k(k+6)x=k+7(x+1)$ tenglama yechimga ega bo'lmaydi? 00-03-11
A)1 va 7 B)1 C)7 D)1 va −7 E)−7

16. a ning qanday qiymatida $a(x-1)>x-2$ tengsizlik x ning barcha qiymatlarida o'rinli bo'ladi? 00-05-33
A)0 B)1 C)2 D)3 E)4

17. $(a^2-1)x+3=0$ tenglama yechimga ega bo'lmaydigan a ning barcha qiymatlari yig'indisini hisoblang 98-05-19
A)1 B)2 C)0 D)−1 E)−2

18. a ning $(a^2-4)x+5=0$ yechimga ega bo'lmaydigan barcha qiymatlari ko'paymasini hisoblang. 99-07-21
A)4 B)–4 C)0 D)2 E)–2

19. a ning qanday qiymatida $(a^2+2)x=a(x-a)+2$ tenglamaning ildizlari cheksiz ko'p bo'ladi? 01-01-10
A)$-\sqrt{2}$ B)$\sqrt{2}$ C)$\sqrt{2}$; $-\sqrt{2}$ D)Ø
E)To'g'ri javob berilmagan.

20. $(a+3)x+(a^2-16)y+2=0$ to'g'ri chiziq a ning qanday qiymatida abssissa o'qiga parallel bo'ladi? 01-03-12
A)–3 B)2 C)–2 D)3 E)4

21. $(k^2-4k+2)x=k-x-3$ yoki $(k+2)x-1=k+x$ tenglama cheksiz ko'p yechimga ega bo'ladigan k ning nechta qiymati mavjud? 98-03-14
A)0 B)1 C)2 D)3 E)cheksiz ko'p

22. k ning $(k^2-3k+1)x=k-x-4$ va $(k+1)x+1=k+x$ tenglamalardan hech bo'lmaganda birining cheksiz ko'p yechimga ega bo'ladigan nechta qiymati mavjud? 98-10-62
A)bunday qiymat yo'q B)1 C)2 D)3
E)cheksiz ko'p

23. a ning qanday qiymatlarida $ax+2y=3$ va $2x-y=-1$ to'g'ri chiziqlar kesishadi? 96-01-26
A)$a=0$ B)$a\neq 2$ C)$a\in R$ D)$a\neq -4$
E)$a\neq -2$

24. a va b ning qanday qiymatlarida $ax+by=-4$ va $2x-2y=4$ to'g'ri chiziqlar ustma-ust tushadi? 96-09-77
A)$a=2$, $b=-2$ B)$a=-2$, $b=2$ C)$a=b=2$
D)$a=2$, $b=-1$ E)$a=4$, $b=2$

25. k ning qanday qiymatlarida $kx+3y+5=0$ va $(k+1)x-2y-1=0$ to'g'ri chiziqlar parallel bo'ladi? 98-03-44
A)–3 va 5 B)$\frac{3}{5}$ C)–5 va 3
D)–3 va 2 E)$-\frac{3}{5}$

26. k ning qanday qiymatlarida $kx+3y+1=0$ va $2x+(k+1)y+2=0$ to'g'ri chiziqlar parallel bo'ladi? 98-10-91
A)2 B)–2 C)–3 D)2 va –2 E)–3 va 2

27. $\begin{cases} a^2x+3y=3 \\ 3x+y=4 \end{cases}$ tenglamalar sistemasi
a ning qanday qiymatlarida yechimga ega emas? 99-01-17
A)±3 B)±1 C)$\pm\sqrt{3}$ D)0 E)0

28. k ning qanday qiymatlarida $\begin{cases} (k^2-k-1)x+2{,}5y-5=0 \\ 2x+y+k=0 \end{cases}$ sistemaning birorta ham yechimi bo'lmaydi? 98-03-24
A)–2 B)–2 va 3 C)3 D)4 va 3 E)5

29. a ning qanday qiymatlarida $\begin{cases} ax-y=0 \\ x+y=10 \end{cases}$ tenglamalar sistemasi yechimga ega bo'lmaydi? 98-05-20
A)–1 B)2 C)1 D)–2 E)3

30. a ning qanday qiymatida $\begin{cases} ax+2y=4 \\ 2x+y=3 \end{cases}$ tenglamalar sistemasi yechimga ega bo'lmaydi? 99-07-22
A)4 B)–4 C)2 D)–2 E)3

31. k ning qanday qiymatida $\begin{cases} 3x+6y=k, \\ 9x+18y=k+1 \end{cases}$ sistemasi cheksiz ko'p yechimga ega? 99-09-16
A)$\frac{1}{3}$ B)1 C)$\frac{1}{2}$ D)$\frac{2}{3}$ E)$\frac{4}{5}$

32. a ning qanday qiymatida $\begin{cases} (6+a)x-6y=2, \\ -2ax+3y=a-3 \end{cases}$ tenglamalar sistemasi cheksiz ko'p yechimga ega bo'ladi? 00-03-12
A)2 B)–2 C)–6 D)4 E)–13

33. k ning qanday qiymatida $\begin{cases} kx+4y=4 \\ 3x+y=1 \end{cases}$ tenglamalar sistemasi yagona yechimga ega bo'ladi? 00-05-27
A)$k\neq 12$ B)$k=9$ C)$k\neq 19$
D)$k=12$ E)$k=1$

34. k ning qanday qiymatida $\begin{cases} 3x+(k-1)y=k+1 \\ (k+1)x+y=3 \end{cases}$ tenglamalar sistemasi cheksiz ko'p yechimga ega bo'ladi? 01-02-15
A)–1 B)–2 C)0 D)2 E)1

35. a va b ning qanday qiymatlarida $\begin{cases} ax-5y=-1 \\ 6x+15y=b+3 \end{cases}$ tenglamalar sistemasi yechimga ega emas? 03-08-15
A)$a=2$; $b\neq 1$ B)$a=2$; $b\neq 0$ C)$a\neq 1$, $b=3$
D)$a=-2$; $b\neq 1$ E)$a=-2$, $b\neq 0$

36. a ning nechta qiymatida $\begin{cases} (a-2)x+3y=5 \\ 7x-18y=1 \end{cases}$ tenglamalar sistemasi yechimga ega emas? 03-10-30
A)1 B)2 C)4
D)birorta ham qiymatida E)cheksiz ko'p

37. k parametrning qanday qiymatlarida $\begin{cases} kx-3y=6 \\ 2x-y=2 \end{cases}$ tenglamalar sistemasi yechimga ega emas? 03-12-07

A)bunday qiymatlar yo'q
B)2 C)3 D)6 E)1

38. Agar $\begin{cases} x+3y=6 \\ 2x+ky=8 \end{cases}$ bo'lsa, k ning qanday qiymatida $x+y=2$ tenglik o'rinli bo'ladi? 97-09-83

A)0 B)1 C)2 D) 3 E)4

39. a ning qanday qiymatida $\begin{cases} 2x+3y=5 \\ x-y=2 \\ x+4y=a \end{cases}$ tenglamalar sistemasi yechimga ega? 01-10-28

A)0 B)1 C)2 D)3 E)4

40. $y_1=-\frac{41}{5}x$ funksiyaning grafigi $y_2=kx+\frac{41}{5}$ funksiyaning grafigiga k ning qaysi qiymatida parallel bo'ladi? 98-11-14

A)$(\frac{5}{41})^{-1}$ B)$\frac{5}{41}$ C)$-(\frac{5}{41})^{-1}$ D)$-\frac{5}{41}$ E)Ø

41. k ning qanday qiymatida $y_1=-\frac{21}{5}x$ va $y_2=kx-\frac{21}{5}$ funksiyalarning grafiklari o'zaro parallel bo'ladi? 00-10-10

A)$\frac{21}{5}$ B)$\frac{5}{21}$ C)$-(\frac{5}{21})^{-1}$ D)$-\frac{5}{41}$ E)Ø

42. k ning qanday qiymatlarida $\begin{cases} (k^2+k+1)x+3y-6=0 \\ x+y+k=0 \end{cases}$ sistema birorta ham yechimga ega bo'lmaydi? 98-10-71

A)-2 B)1 C)-2 va 1 D)1 va 3 E)3

43. Agar $\begin{cases} x+2y=2 \\ 2x+y=k \end{cases}$ bo'lsa, k ning qanday qiymatida $x+y=2$ tenglik o'rinli bo'ladi? 97-04-23

A)2 B)4 C)1 D)5 E)3

44. a ning qanday qiymatida $\begin{cases} 2x+ay=2 \\ ax+2y=3 \end{cases}$ tenglamalar sistemasi yechimga ega bo'lmaydi? 99-02-17

A)3 B)±3 C)4 D)±2 E)-4

45. a ning qanday qiymatlarida $ax=3x+1$ tenglama yechimga ega bo'lmaydi? 2006

A)$a=2$ B)$a\neq 1$ C)$a=3$ D)$a\neq 2$

5-BOB. FOIZLAR. CHIZIQLI TENGLAMALAR VA ULARNING SISTEMALARIGA KELADIGAN MASALALAR.

1-§. Foizlar.

1. 17 ning 17% ini toping. 01-10-05
A)1 B)3,24 C)2,89 D)10 E)2,79

2. 19 ning 19% ini toping. 00-06-12
A)1 B)2,89 C)3,69 D)3,61 E)3,91

3. $2\frac{3}{5}$ va $\frac{1}{2}$ sonlar ayirmasining 10% ini toping. 98-01-02
A)0,22 B)0,3 C)0,021 D)0,03 E)0,21

4. $2\frac{5}{6}$ va $2\frac{1}{2}$ sonlar yig'indisining 25% ini toping. 98-08-02
A)$1\frac{1}{3}$ B)$1\frac{1}{6}$ C)$1\frac{2}{3}$ D)$\frac{5}{6}$ E)$\frac{11}{12}$

5. Yangi uzulgan nokdan 16% qoqi tushadi. 48 kg nok qoqisi olish uchun necha kg yangi uzilgan nok olish kerak? 96-10-04
A)300 B)640 C)200 D)240 E)360

6. Qutiga 25 kg massali yuk joylandi. Agar qutining massasi yuk massasining 12% ini tashkil etsa, qutining massasini toping. 97-05-05
A)3 kg B)3,5 kg C)4 kg D)4,5 kg E)5 kg

7. Qutiga 12 kg massali yuk joylandi. Agar qutining massasi yuk massasining 25% ini tashkil etsa, qutining massasini toping. 97-09-05
A)4 kg B)3 kg C)3,5 kg D)4,5 kg E)5 kg

8. Paxtadan 30% tola olinsa, 60 tonna tola olish uchun qancha paxta kerak? 98-05-03
A)100 B)400 C)200 D)300 E)180

9. 21 kg shakar va 129 kg boshqa mahsulotlardan muzqaymoq tayyorlandi. Shakar muzqaymoqning necha foizini tashkil etadi? 98-10-05
A)13 B)15 C)16 D)14 E)12

10. 140 g suvga 60 g tuz qo'shish natijasida hosil bo'lgan tuzli eritmada necha prosent tuz bor? 00-05-15
A)20 B)30 C)25 D)35 E)45

11. Do'konga 96 t karam keltirildi. Agar karamning 80% i sotilgan bo'lsa, do'konda qancha karam qolgan? 96-01-04
A)16 B)19,2 C)24 D)20,2 E)18,4

12. Magazinga keltirilgan tarvuzlarning 56% i birinchi kuni, qolgan 132 tasi ikkinchi kuni sotildi. Birinchi kuni qancha tarvuz sotilgan? 96-05-03
A)168 B)148 C)178 D)138 E)158

13. Olxo'ri quritilganda 35% olxo'ri qoqisi hosil bo'ladi. 64 kg olxo'ri quritilsa, qancha olxo'ri qoqisi olinadi? 96-09-55
A)20 B)18,2 C)22,4 D)25 E)21,4

14. Kutubxonadagi kitoblarning 55% i o'zbek tilida, qolgan kitoblar rus tilida. Rus tilidagi kitoblar 270 ta. Kutubxonada o'zbek tilida nechta kitob bor? 97-08-03
A)325 B)310 C)320 D)315 E)330

15. Go'sht qaynatilganda o'z og'irligining 40% ini yo'qotadi. 6 kg pishgan go'sht olish uchun qancha go'sht qaynatish kerak? 97-12-03
A)8 kg B)10 kg C)10,5 kg D)9kg E)7,5kg

16. Bug'doydan 90% un olinadi. 3 t bug'doydan qancha un olish mumkin? 99-07-05
A)2,5 B)2,6 C)2,1 D)2,9 E)2,7

17. 1750 kg un elanganda, 105 kg kepak chiqdi. Necha protsent un qoldi? 00-05-16
A)88 B)94 C)90 D)92 E)96

18. Agar sonning 40% ini 5 ga ko'paytirganda 8 chiqsa, shu sonning o'zini toping. 01-01-03
A) 2 B)4 C)6 D)8 E)12

19. A sonining 25% i B sonining 15% iga teng bo'lsa, A soni B sonining necha foizini tashkil etadi? 03-12-50
A)8,75 B)87,5 C)60 D)40 E)18,75

20. 30 ta talabadan 25 tasi qishki sinovlarning hammasini topshirdi. Ba'zi sinovlarni topshira olmagan talabalar barcha sinovlarni topshirgan talabalarning necha foizini tashkil etadi? 97-04-05
A)10% B)15% C)20% D)25% E)30%

21. 100 kishidan iborat turistlar guruhida 70 kishi ingliz tilini, 45 kishi nemis tilini va 23 kishi ikkala tilni biladi. Ikkala tilni bilmaydigan turistlar necha foizni tashkil etadi? 98-02-05
A)6 B)12 C)8 D)10 E)14

22. Sinfdagi 35 ta o'quvchidan 28 tasi suzish seksiyasiga, 14 tasi voleybol seksiyasiga qatnashadi. Agar har bir o'quvchi, hech bo'lmaganda, bitta seksiyaga qatnashsa, ikkala seksiyaga qatnashadigan o'quvchilar necha foizni tashkil etadi? 98-09-03
A)20 B)18 C)25 D)15 E) 20

23. Toshkentga kelgan sayyohlarning 75% i ingliz tilini, 47% i esa fransuz tilini biladi. Shu sayyohlardan 22 tasi ikkala tilni ham biladi. Agar sayyohlar ingliz va fransuz tilidan boshqa tilni bilishmasa, ularning umumiy soni qancha? 99-09-03
A)105 B)100 C)90 D)120 E)85

24. Imtihon o'tkazilayotgan xonadagi abiturientlarning 56% i qizlar, qolganlari o'g'il bolalar. Xonadagi abiturientlar soni quyidagi sonlardan qaysi biriga teng bo'lishi mumkin? 00-04-26
A)44 B)60 C)80 D)99 E)50

25. Jamg'arma banki har yili omonatchi hisobiga u ilk bor joylashtirgan pulning 25,5% ini o'tkazib turadi. Omonatchi 400 so'm qo'ygan bo'lsa, 5 yildan so'ng uning hisobida necha so'm bo'ladi? 98-11-04
A)880 B) 980 C) 910 D)1020 E)960

26. Birinchi son 60 ga teng. Ikkinchi son birinchi sonning 80% ini, uchinchisi esa birinchi va ikkikchi son yig'indisining 50% ini tashkil qiladi. Bu sonlarning o'rta arifmetigini toping. 00-05-14
A)60 B)48 C)54 D)50 E)81

27. Uy bekasi kilosi 150 so'mdan yong'oq sotib oldi. Yong'oqlar qobig'idan tozalangach, umumiy og'irligining 60% i qoldi. Uy bekasi bir kilogramm tozalangan yong'oq uchun necha so'm to'lagan? 01-02-71
A)190 B)180 C)220 D)250 E)280

28. 11300 ning 36% i va 8400 ning 28% ining yig'indisi shu sonlar yig'indisining 40% idan qanchaga kam? 01-09-30
A)1460 B)1360 C)1560 D)1465 E)1375

29. Kilosi 600 so'mdan baliq sotib olindi. Tozalangandan keyin baliqning og'irligi dastlabki og'irligining 80% ini tashkil etdi. 1 kg tozalangan baliq necha so'mga tushgan? 03-01-64
A)480 B)500 C)640 D)720 E)750

30. Xo'jalikda 12120 ga yerga bug'doy, paxta va beda ekildi. Hamma yerning 30% iga bug'doy, bedadan 6244 ga ortiq yerga paxta ekilgan. Necha ga yerga paxta ekilgan? 01-02-07
A)3636 B)7364 C)1720 D)6520 E)3890

31. Bog'dagi daraxtlarning 60% i teraklar. Qolgan daraxtlarning 30% i chinorlar bo'lsa, boshqalari - tollar. Bog'dagi daraxtlarning necha foizini tollar tashkil etadi? 03-02-66
A)12 B)18 C)28 D)24 E) 32

32. x ning y ga nisbati 6:7 kabi, y ning z ga nisbati 14:15 kabi, z ning necha foizini x tashkil etadi? 01-10-09
A)30 B)40 C)50 D)60 E)80

33. a ning b ga nisbati 4:5, b ning c ga nisbati esa 7:8 kabi, c ning necha foizini a tashkil qiladi? 02-06-15
A)60 B)75 C)70 D)80 E)50

34. Mahsulotni sotishdan olinadigan foyda uning sotuvdagi bahosining 10% ini tashkil qiladi. Bu foyda mahsulot tannarxining neча foizini tashkil qiladi? 01-11-03
A) $11\frac{2}{9}\%$ B) $11\frac{1}{9}\%$ C) $12\frac{1}{3}\%$
D) $12\frac{2}{3}\%$ E)11,5 %

35. Go'sht qaynatilganda o'z vaznining 40% ini yo'qotadi. 6 kg go'sht qaynatilganda vazni necha kg kamayadi? 96-12-63
A)2,4 B)2,2 C)1,9 D)2 E)2,5

36. Brigada ekin maydonining 180 gektariga paxta, 60 gektariga sholi ekdi. Sholi maydoni paxta maydoning necha foizini tashkil qiladi? 97-09-65
A) $33\frac{1}{3}$ B)33 C) $33\frac{2}{3}$ D)34 E) $32\frac{1}{3}$

2-§. Murakkab foizlar.

1. 40 dan 32 necha protsent kam? 96-09-01
A)18 B)20 C)22 D)25 E)24

2. 720 ning 50% i 24 ning 500% dan necha foiz ko'p? 03-12-48
A)100 B)200 C)300 D)320 E)400

3. Ishchining oylik maoshi 350 so'm. Agar uning maoshi 30% ga oshirilsa, u qancha maosh oladi? 96-03-04
A)405 so'm B)380 so'm D)1050 so'm
D)455 so'm E)395 so'm

4. Go'sht qaynatilganda o'z vaznining 40% ini yo'qotadi. 6 kg qaynatilgan go'sht hosil qilish uchun qozonga necha kg go'sht solish kerak? 96-03-65
A)8 B)9 C)10 D)11 E)12

5. Nafaqaxo'rning oylik nafaqasi 450 so'm. Agar uning nafaqasi 20% ortsa, u qancha nafaqa oladi? 96-11-04
A)540 so'm B)470 so'm C)900 so'm
D)490 so'm E)810 so'm

6. Talabaning stipendiyasi 400 so'm. Agar uning stipendiyasi 25% ortsa, u qancha stipendiya oladi? 96-12-04
A)425 so'm B)500 so'm C)600 so'm
D)700 so'm E)1000 so'm

7. Xalq banki yiliga qo'yilgan pulning 5% ini to'laydi. Agar 680 so'm qo'yilgan bo'lsa, u bir yildan keyin necha so'm bo'ladi? 00-03-09
A)706 B)708 C)714 D)718 E)722

8. Xo'jalikda paxta ishlab chiqarish har yili 10% ga ortsa, 3 yilda paxta ishlab chiqarish necha foizga ortadi? 01-02-72
A)30 B)32 C)33 D)33,1 E)33,3

9. Mexnat unumdorligi 40% oshgach, korxona kuniga 560 ta buyum ishlab chiqaradigan bo'ldi. Korxonada oldin kuniga nechta buyum ishlab chiqarilgan? 02-02-07
A)400 B)420 C)380 D)440 E)360

10. Birinchi son 0,6 ga, ikkinchi son 0,15 ga teng. Birinchi son ikkinchi sondan necha foiz ortiq? 02-09-02
A)75 B)25 C)300 D)40 E)175

11. 12% ga arzonlashtirilgandan keyin mahsulotning bahosi 1100 so'm bo'ldi. Mahsulotning dastlabki bahosini aniqlang. 03-02-36
A)1200 B)1240 C)1280
D)1250 E)1260

12. Mahsulotning narxi ketma-ket ikki marta 10% ga oshirilgandan so'ng 484 so'm bo'ldi. Birinchi ko'tarilgandan so'ng mahsulotning narxi necha so'm bo'lgan? 03-04-02
A)420 B)430 C)450 D)440 E)410

13. Mahsulotning bahosi 30% ga oshirildi. Ma'lum vaqtdan keyin 20% ga arzonlashtirildi, shundan so'ng uning narxi 7800 so'm bo'ldi. *Mahsulotning dastlabki bahosi necha so'm* bo'lgan? 03-12-49
A)6500 B)6820 C)7500 D)9300 E)8400

14. Ishchining maoshi dastlab 25% ga, so'ngra yana 25% ga oshirilgan bo'lsa, uning maoshi necha prosentga oshgan? (98-10-54)
A)50 B)55 C)55,25 D)56 E)56,25

15. Birinchi son 20% ga, ikkinchisi 30% ga orttirilsa, ularning ko'paytmasi necha foizga ortadi?. (99-05-52)
A) 60 B) 50 C) 65 D)56 E) 40

16. Mahsulotning narxi birinchi marta 25% ga, ikkinchi marta yangi bahosi yana 20% ga oshirildi. Mahsulotning oxirgi bahosi necha foizga kamaytirilsa, uning narxi dastlabki narxiga teng bo'ladi? (00-07-06)
A)45 B)48 C)50 D)$33\frac{1}{3}$ E)42

17. Korxonada mahsulot ishlab chiqarish birinchi yili 20% ga, ikkinchi yili 10% ga ortdi. Mahsulot io'lab chiqarish ikki yil mobaynida necha foizga ortgan? (00-09-16)
A)50 B)28 C)30 D)32 E)36

18. Ishlab chiqarish samaradorligi birinchi yili 15% ga, ikkinchi yili 12% ga ortdi. Shu ikki yil ichida samaradorlik necha foizga ortgan? (01-10-07)
A)27 B)28 C)28,6 D)27,8 E)28,8

19. 200 ni 30% ga orttirildi, hosil bo'lgan son 20% ga kamaytirildi. Natijada qanday son hosil bo'ldi? (99-03-03)
A)206 B)210 C)208 D)212 E)205

20. Agar ikkita sondan biri 20% ga, ikkinchi 12,5% ga kamaytirilsa, ularning ko'paytmasi necha foizga kamayadi? (00-09-57)
A)40 B)50 C)45 D)35 E)30

21. Firma mahsulotni 380 so'mga sotib, 4 foiz zarar qildi. Shu mahsulotning tannarxini toping. (01-12-26)
A)400 B)495 C)$395\frac{5}{6}$ D)$395\frac{1}{6}$ E)$395\frac{2}{3}$

22. Kitob 200 so'm turadi. Uning narxi 2 marta 5% dan arzonlashtirildi. Kitobning narxi necha so'm bo'ldi? (02-01-36)
A)180 B)180,2 C)180,3 D)180,4 E)180,5

23. Ishchining ish normasini bajarishga ketadigan vaqti 20% ga qisqardi. Uning mehnat unumdorligi necha foizga oshdi? (96-07-04)
A)20 B)15 C)5 D)25 E)10

24. Agar tezlik 25% ga ortsa, ma'lum masofani bosib o'tish uchun ketadigan vaqt necha foizga kamayadi? (97-07-04)
A)25% B)30% C)20% D)16% E)24%

25. IV razryadli ishchi III razryadli ishchiga qaraganda 25% ko'p haq oladi. III razryadli ishchi IV razryadli ishchiga qaraganda necha foiz kam haq oladi? (01-07-09)
A)25 B)20 C)18 D)15 E)10

26. Umumiy daftarning bahosi oldin 15%, keyin 150 so'm arzonlashgach 190 so'm bo'ldi. Daftarning oldingi bahosi necha so'm bo'lgan? (03-08-12)
A)400 B)500 C)350 D)340 E)450

27. Korxonada mahsulot ishlab chiqarish birinchi yili 10% ga, ikkinchi yili 15% ga oshdi. Mahsulot ishlab chiqarish ikki yil mobaynida necha foizga ortgan? (99-05-07)
A)25 B) 26 C)27,5 D)26,5 E)28,75

28. Inflyasiya natijasida mahsulotning narxi 25% ga oshirildi. Lekin mahsulotga talabning kamligi tufayli uning narxi 10% ga kamaytirildi. Mahsulotning oxirgi narxi dastlabkisiga qaraganda necha foiz ortdi? (00-01-03)
A)12,8 B)11,5 C)12 D)12,5 E)15

29. Xodimning oylik maoshi ketma-ket ikki marta bir xil foizga oshirilgandan so'ng dastlabki maoshdan 69 % ga oshgan bo'lsa, maosh har gal necha foizdan oshirilgan? (01-05-07)
A)30 B)34,5 C)40 D)35 E)34

30. Daftarning narxi ketma-ket ikki marta bir xil foizga pasaytirilgandan keyin, 30 so'mdan 19,2 so'mga tushdi. Daftarning narxi har gal necha foizga pasaytirilgan? (02-11-05)
A)15 B)16 C)18 D)20 E)25

31. x y ning 50% ini tashkil etadi, y esa z dan 300% ga ko'p. x z dan necha foiz ko'p. (03-02-37)
A)100 B)80 C)200 D)250 E)150

32. Mahsulotning narxi ketma-ket ikki marta 10% dan oshirildi. Keyinchalik bu mahsulotga talabning kamligi tufayli uning narxi 20% ga kamaytirildi. Mahsulotning keyingi bahosi dastlabki bahosiga qaraganda qanday o'zgargan? (03-10-22)
A)o'zgarmagan B)1,2% ga ortgan
C)1,8% ga kamaygan
D)3,2% ga kamaygan E)3,2% ga ortgan

33. Biznesmen o'z pulining 50% ini yo'qotdi. Qolgan puliga aksiya sotib olgach, u 40% daromad (foyda) oldi. Uning oxirgi puli dastlabki pulining necha foizini tashkil etadi? (03-10-23)
A)60 B)70 C)80 D)100 E) 75

34. Muayyan masofani bosib o'tish uchun ketadigan vaqtni 25% ga kamaytirish uchun tezlikni necha foiz oshirish kerak? (97-10-04)
A)25 B)20 C)$33\frac{1}{3}$ D)30 E)$24\frac{2}{3}$

35. Ishchining maoshi dastlab 20% ga, so'ngra yana 20% ga oshirilgan bo'lsa, uning maoshi necha foizga oshgan? (98-03-06)
A)40 B)50 C)42 D)44 E)46

36. Ishchining mehnat unumdorligi 20% ortsa, uning ish normasini bajarishga ketadigan vaqti necha foizga qisqaradi? (97-03-04)
A)20% B)25% C)$10\frac{1}{3}$% D)$16\frac{2}{3}$% E)24%

37. Ikki sonning yig'indisi ularning ayirmasidan 50% ga ortiq. Bu sonlar kvadratlarining yig'indisi ularning ko'paytmasidan necha foizga ko'p? (98-12-88)
A)420 B)100 C)150 D)240 E)350

38. 32 dan 60 necha protsent ortiq? 06-13-9
A)90 B)82,5 C)83,5 D)85 E)87,5

39. Birinchi son 20% ga, ikkinchisi 30% ga orttirilsa, ularning ko'paytmasi necha foizga ortadi? 99-07-52
A) 60 B) 50 C) 65 D)56 E) 40

3-§. Aralashma, qotishma va eritmalarga doir masalalar.

1. *A* aralashmaning bir kilogrammi 1000 so'm, *B* aralashmaning bir kilogrammi esa 2000 so'm turadi. *B* va *A* aralashmadan 3:1 nisbatda tayyorlangan 1 kg aralashma necha so'm turadi? 03-12-12
A)1500 B)1750 C)1650 D)1800 E)1850

2. Qo'rg'oshin va misdan quyilgan ikkita quyma bor. Birinchi mis quymada 3 kg qo'rg'oshin va 2 kg mis bor. Ikkinchi quymada 13 kg qo'rg'oshin va 7 kg mis bor. Qaysi quymada qo'rg'oshinning foiz miqdori ko'p va u necha foiz? 97-05-12
A)1 – *quymada* 5% B)2 – *quymada* 65%
C)2 – *quymada* 5% D)1 – *quymada* 60%
E)2 – *quymada* 20%

3. Qo'rg'oshin va misdan quyilgan ikkita quyma bor. Birinchi quymada 2 kg qo'rg'oshin va 6 kg mis bor. Ikkinchi quymada 12 kg qo'rg'oshin va 3 kg mis bor. Qaysi quymada qo'rg'oshinning foiz miqdori ko'p va u necha foiz ko'p? 97-09-12
A)2 – *quymada* 55% B)1 – *quymada* 25%
C)2 – *quymada* 80% D)2 – *quymada* 45%
E) 1 – *quymada* 55%

4. 20 litr tuzli suvning tarkibida 12% tuz bor. Bu eritmada tuz miqdori 15% bo'lishi uchun necha litr suv bug'lantirilishi kerak? 02-07-52
A)4 B)3 C)5 D)4,2 E)4,8

5. Eritma tarkibida 60 g tuz bor. Unga 400 g toza suv qo'shilsa, tuzning konsentratsiyasi 1,5 marta kamaydi. Dastlabki eritma necha gramm bo'lgan? 03-10-06
A)800 B)840 C)780 D)900 E) 640

6. 15 kg eritmaning 35 foizi tuzdan iborat. Tuzning miqdori 25 foiz bo'lishi uchun eritmaga necha kg chuchuk suv qo'shish kerak? 01-12-14
A)6 B)5 C)5,5 D)5,25 E)7

7. 800 kg mevaning tarkibida 80% suv bor. Bir necha kundan keyin mevaning og'irligi 500 kg ga tushdi. Endi uning tarkibida necha foiz suv bor? 01-12-35
A)62 B)68 C)66 D)60 E)64

8. Massasi 36 kg bo'lgan mis va rux qotishmasining tarkibida 45% mis bor. Qotishma tarkibida 60% mis bo'lishi uchun unga yana necha kg mis qo'shish kerak? 03-05-15
A)13,5 B)14 C)12 D)15 E)12,8

9. Sement va qumdan iborat 30 kg qorishmaning 60% ini sement tashkil etadi. Qorishmaning 40% i sementdan iborat bo'lishi uchun qorishmaga qancha qum qo'shish kerak? 03-08-07
A)10 B)12 C)15 D)18 E)20

10. Massasi 400 g va konsentrasiyasi 8% bo'lgan eritma massasi 600 g va konsentrasiyasi 13% bo'lgan eritma bilan aralashtirildi. Hosil bo'lgan aralashmaning konsentrasiyasini (%) toping. 98-12-65
A)11 B)12 C)9 D)10 E)10,5

11. Yig'ilgan 1 t mevaning 82% i suvdan iborat. Ma'lum vaqtdan keyin bu mevadagi suvning miqdori 70% ga tushdi. Endi bu mevaning og'irligi necha kg chikadi? 00-04-28
A)810 B)820 C)700 D)780 E)600

12. Yog'liligi 2% bo'lgan 80 L sut bilan yog'liligi 5% bo'lgan necha L sut aralashtirilsa, yog'liligi 3% bo'lgan sut olish mumkin? 00-04-29
A)20 B)30 C)40 D)50 E)60

13. Bir idishda 40% li, ikkinchi idishda 35% li eritma bor. Ularni aralashtirib, 37% li 11 eritma olish uchun har bir eritmadan necha litrdan olish kerak? 00-05-20
A)0,3 va 0,7 B)0,2 va 0,8 C)0,4 va 0,6
D)0,1 va 0,9 E)0,55 va 0,45

14. Qotishma mis va qo'rg'oshindan iborat. Qotishmaning 60% i mis bo'lib, mis qo'rg'oshindan 2 kg ko'p. Qotishmada qancha mis bor? 97-02-03
A)5 B)7 C)6 D)5,5 E)6,2

15. Massasi 300 g va konsentratsiyasi 15% bo'lgan eritma massasi 500 g va konsentratsiyasi 9% bo'lgan eritma bilan aralashtirildi. Hosil bo'lgan aralashmaning konsentratsiyasini (%) toping. 98-04-04
A)12,75 B)11,75 C)12,25 D)11,25 E)10,75

4-§. Chiziqli tenglamalar va ularning sistemalarga keladigan masalalar.

1. Ikki sonning ayirmasi 33 ga teng. Agar shu sonlardan kattasining 30% i kichigining $\frac{2}{3}$ qismiga teng bo'lsa, shu sonlarni toping. 96-01-09
A)56 va 23 B)27 va 60 C)17 va 50
D)37 va 70 E)63 va 30

2. Ikki son yig'indisi 24 ga teng. Agar shu sonlardan birining 85% i ikkinchisining $\frac{7}{20}$ qismiga teng bo'lsa, shu sonlarni toping. 96-09-59
A)18 va 6 B)20 va 4 C)7 va 17 D)8 va 16 E)15 va 9

3. Ikki sonning ayirmasi 5 ga teng. Agar shu sonlardan kattasining 20% i kichigining $\frac{2}{9}$ qismiga teng bo'lsa, shu sonlarni toping 96-10-09
A)30 va 35 B)36 va 41 C)45 va 50 D)63 va 68 E)90 va 95

4. Noma'lum sonning 28% i $3\frac{1}{3}$ ning 42% iga teng. Noma'lum sonni toping. 97-01-05

A) $4\frac{2}{3}$ B)5 C) $6\frac{1}{3}$ D)4,2 E)6 .

5. Noma'lum sonning 14% i 80 ning 35% iga teng. Noma'lum sonni toping. 97-05-05

A)120 B)168 C)200 D)280 E)140

6. Noma'lum sonning 36% i 80 ning 45% iga teng. Noma'lum sonni toping. 97-11-05

A)92 B)98 C)108 D)120 E)100

7. Qisqarmaydigan oddiy kasrning maxraji suratidan 11 taga ko'p. Agar kasrning suratiga 167 ni, maxrajiga 13 ni qo'shsak, berilgan kasrga teskari kasr hosil bo'ladi. Berilgan kasrning maxrajini toping. 98-06-03

A)17 B)15 C)13 D)14 E)16

8. 520 sonini shunday ikki bo'lakka bo'lingki, ulardan birining 80% i ikkinchisining 24 % ini tashkil qilsin. Bo'laklardan kattasini toping. 99-01-06

A)400 B)120 C)240 D)460 E)416

9. Yig'indisi 62 va 38 sonlarining o'rta arifmetigiga teng bo'lishi uchun 62 ning 60% i olinsa, 38 ning necha foizini olish kerak? 01-09-32

A) $32\frac{7}{15}$ B)33 C)32 D) $33\frac{12}{17}$ E) $33\frac{13}{19}$

10. Ikki sonning ayirmasi 24 ga teng. Agar birinchi sonni ikkinchisiga bo'lsak, bo'linma 4 ga va qoldiq 3 ga teng chiqadi. Berilgan sonlarning yig'indisini toping. 01-11-05

A)31 B)30 C)29 D)42 E)38

11. Ikkita musbat sonning o'rta arifmetigi 7,5. Ularning o'rta geometrigi esa o'rta arifmetigining 80% iga teng. Shu sonlarni toping. 01-12-33

A)6 va 7 B)5 va 8 C)3 va 10
D)12 va 3 E)11 va 2

12. Ikki sonning ayirmasi $\sqrt{6}$ ga, yig'indisi esa $\sqrt{10}$ ga teng. Ularning ko'paytmasi 2 dan qancha kam? 02-01-05

A)1 B)2 C)3 D)6 E)4

13. Son ikki qismga bo'lingan. Birinchi qismining $\frac{1}{4}$ ulushi ikkinchi qismning $\frac{1}{6}$ qismining ulushiga teng. Agar ikkinchi qismining $\frac{1}{18}$ ulushi 13 ga teng bo'lsa, sonning o'zini toping. 02-01-31

A)252 B)390 C)168 D)170 E)420

14. 6 foizi 30 ning 22 foiziga teng bo'lgan sonni toping. 02-10-44

A)110 B)108 C)96 D)90 E)114

15. Ikki sonning yig'indisi 24 ga teng. Bu sonlardan birining 35% i ikkinchisining 85% iga teng. Shu sonlardan kichigini toping. 02-12-01

A)3,5 B)7 C)6 D)9 E)10

16. $\frac{5}{7}$ qismi 4 ga teng bo'lgan sonni toping. 03-06-30

A) $5\frac{6}{7}$ B) $5\frac{1}{5}$ C) $5\frac{2}{5}$ D) $5\frac{3}{5}$ E) $5\frac{3}{7}$

17. 0,23 qismi 690 ga teng sonni toping. 03-06-33

A)3000 B)2500 C)2800 D)3500 E)3200

18. Ikki sonning yig'indisi 15 ga teng, ularning o'rta arifmetigi shu sonlarning o'rta geometrigidan 25% ga katta. Shu sonlar kvadratlarining yig'indisini toping. 03-08-08

A)117 B)153 C)125 D)113 E)173

19. 0,4(6) qismi 360 sonining 0,6(4) qismiga teng sonni toping. 03-08-26

A) $497\frac{1}{7}$ B) $506\frac{2}{7}$ C) $400\frac{3}{7}$ D) $497\frac{5}{7}$
E) $497\frac{4}{7}$

20. Ikki sonning yig'indisi 6 ga, ko'paytmasi 7 ga teng bo'lsa, bu sonlar kublarining yig'indisi nechaga teng bo'ladi? 03-10-07

A)90 B)48 C)64 D)72 E) 108

21. $x\,(x>0)$ ga teskari bo'lgan son x ning 36% ini tashkil etadi. x ning qiymatini toping. 03-10-21

A) $2\frac{1}{3}$ B) $1\frac{2}{3}$ C) $1\frac{1}{3}$ D) $2\frac{2}{3}$ E) $3\frac{1}{3}$

22. Birinchi son ikkinchi sondan 2,5 ga ortiq. Birinchi sonning $\frac{1}{5}$ qismi ikkinchi sonning $\frac{4}{5}$ qismiga teng. Shu sonlarning yig'indisini toping. 03-11-69

A)4 B)6 C) $6\frac{1}{3}$ D) $5\frac{1}{6}$ E) $4\frac{1}{6}$

23. Motosiklchi va velosipedchi bir-biriga tomon harakatlanmoqda. Ular orasidagi masofa 26km. Velosipedchining tezligi 20 km/soat. Motosiklchining tezligi velosipedchining tezligidan 60% ga ortiq. Ular necha soatdan keyin uchrashadi? 96-12-03

A)3 B) $2\frac{1}{2}$ C)2 D) $1\frac{1}{2}$ E) $\frac{1}{2}$

24. Harakat boshlangandan 0,8 soat o'tgach, motosiklchi velosipedchini quvib yetdi. Motosiklchining tezligi 42 km/ soat, velosipedchining tezligi 12 km/soat bo'lsa, harakat boshlanishidan oldin ular orasidagi masofa qancha bo'lgan? 97-05-07

A)24 km B)22 km C) 26 km D)20 km
E)28 km

25. Motosiklchi va velochipedchi bir tomonga qarab harakat qilishmoqda. Velosipedchining tezligi 12km/soat, motosiklchiniki 30 km/soat va ular orasidagi masofa 72 km bo'lsa necha soatdan keyin motosiklchi velosipedchini quvib yetadi? 97-12-06

A)3 B)4 C)3,5 D)2,5 E)3,8

26. A va B shaharlar orasidagi masofa 188 km. Bir vaqtning o'zidan bir-biriga qarab A shahardan velosipedchi B shahardan motosiklchi yo'lga tushdi va ular A shahardan 48 km masofada uchrashishdi. Agar velosipedchining tezligi 12 km/soat bo'lsa. Motosiklchining tezligini toping. 99-09-04

A) 45 B) 42 C) 30 D)32 E) 35

27. Ikki motosiklchi oraliq masofasi 432 km bo'lgan ikki shahardan bir-biriga qarab bir vaqtda yo'lga chiqdi. Agar ulardan birining tezligi 80 km/soat, ikkinchisiniki birinchisi tezligining 80% ini tashkil etsa, ular necha soatdan keyin uchrashadi? 01-02-13

A)1,5 B)2 C)2,5 D)3 E)3,5

28. Motosiklchi mo'ljaldagi tezlikni 15 km/soatga oshirib, 6 soatda 7 soatda bosib o'tishi kerak bo'lgan masofaga qaraganda 40 km ko'p yo'lni bosib o'tdi. Motosiklchining mo'ljaldagi tezligini toping (km/soat). 03-11-56

A)60 B)45 C)55 D)50 E)40

29. Ikki shahardan bir vaqt bir-biriga qarama-qarshi ikki turist yo'lga chiqdi Birinchisi avtomashinada, tezligi 62 km/soat, ikkinchisi avtobusda, tezligi 48 km/soat. Agar ular 0,6 soatdan keyin uchrashgan bo'lsa, shaharlar orasidagi masofani toping. 96-06-07

A)70 km B)64 km C)62 km D)66 km E)72 km

30. Turist butun yo'lning 0,35 qismini o'tganda, unga yo'lning yarmigacha 18,3 km qolgani ma'lum bo'ldi. Butun yo'lning uzunligini toping. 96-07-10

A)110 km B)102 km C)122 km D)98 km E)78,2 km

31. Velosipedchi bir soatda butun yo'lning 0,65 qismini o'tdi bu esa yo'lning yarmidan 7,5 km ko'p. Butun yo'lning uzunligini toping. 97-03-10

A)47,5 *km* B)62,5 *km* C)50 *km* D)65 *km* E) 42,5 *km*

32. Velosipedchi butun yo'lning 0,6 qismini o'tgach, qolgan yo'l, u bosib o'tgan yo'ldan 4 km ga kamligi ma'lum bo'ldi. Butun yo'lning uzunligini toping. 97-07-10

A)40 km B)24 km C)20 km D)36,6 km E) 42,2 km

33. Turist butun yo'lning 0,85 qismini o'tganda, ko'zlangan manzilgacha 6,6 km qolgani ma'lum bo'ldi. Butun yo'lning uzunligi necha km? 97-10-10

A)52 *km* B)44 *km* C)36,6 *km* D)64,4 *km* E)40,4 *km*

34. Sayyoh muayyan masofaning 70% ini poyezdda, 29,8% ini paroxodda bosib o'tgandan keyin, yo'l oxirigacha yana 200 m qoldi. Sayyoh poyezdda necha km yo'l bosgan? 98-10-06

A)80 B)70 C)85 D)75 E)90

35. Bir vaqtda A va B shaharlardan bir-biriga qarab passajir va yuk poyezdi yo'lga tushdi. Passajir poyezdining tezligi 60 km/soatga, yuk poyezdiniki esa 40 km/soatga teng. Poyezdlar 3 soatdan keyin uchrashdi. Uchrashgandan qancha vaqt o'tganidan keyin yuk poyezdi A shaharga yetib keladi? 03-04-08

A)4 soat 10 m B)4 soat 15 m
C)4 soat 20 m D)4 soat 25 m
E)4 soat 30 m

36. Avtomobil butun yo'lning $\frac{3}{7}$ qismini 1 soatda, qolgan qismini 1,5 soatda bosib o'tdi. Uning birinchi tezligi ikkinchi tezligidan necha marta katta? 03-06-10

A)$\frac{2}{3}$ B)$\frac{3}{2}$ C)$\frac{9}{8}$ D)$\frac{8}{9}$ E)$\frac{5}{4}$

37. Avtomobilda 2 kunda mo'ljallangan yo'lning $\frac{6}{7}$ qismi bosib o'tildi. Bunda birinchi kuni ikkinchi kundagiga qaraganda 2 marta ko'p yo'lni o'tildi. Ikkinchi kuni yo'lning qanday qismi bosib o'tilgan? 03-06-31

A)$\frac{1}{7}$ B)$\frac{2}{7}$ C)$\frac{3}{7}$ D)$\frac{4}{7}$ E)$\frac{5}{7}$

38. Avtomobil butun yo'lning $\frac{3}{7}$ qismini 1 soatda, qolgan qismini 2 soatda bosib o'tdi. Uning birinchi tezligi ikkinchi tezligidan necha marta katta? 03-07-15

A)$\frac{2}{3}$ B)$\frac{3}{2}$ C)$\frac{9}{8}$ D)$\frac{8}{9}$ E)$\frac{5}{4}$

39. Orasidagi masofa 384 km bo'lgan ikki mashina bir vaqtda bir tomonga harakat qilmoqda. 12 soatdan keyin orqadagi mashina oldingi mashinaga yetib oldi. Keyingi mashinaning tezligi oldindagi mashinaning tezligidan qancha ortiq? 03-10-04

A)32 B)16 C)28 D)30 E) 42

40. Soat 9^{00} da ma'lum marshrut bo'yicha tezligi 60 km/soat bo'lgan avtobus jo'natildi. Oradan 40 minut o'tgandan keyin, shu marshrut bo'yicha tezligi 80 km/soat bo'lgan ikkinchi avtobus jo'natildi. Soat nechada ikkinchi avtobus birinchi avtobusni quvib yetadi? 03-10-35

A)10^{40} B)11^{20} C) 11^{40} D)12^{00} E)12^{20}

41. Passajir va yuk poyezdi bir-biriga tomon harakatlanmoqda. Ular orasidagi masofa 275 km. Yuk poyezdining tezligi 50 km/coat. Passajir poyezdining tezligi Yuk poyezdining tezligidan 20% ortiq. Ular necha soatdan keyin uchrashadi? 96-03-03

A) 3 B)2 C) 2,5 D)4 E)3,5

42. Oralaridagi masofa 200 km bo'lgan A va B punktlardan bir vaqtning o'zida ikki turist bir-biriga qarama-qarshi yo'lga chiqdi. Birinchisi avtobusda tezligi 40 km/soat, ikkinchisi avtomobilda. Agar ular 2 soatdan keyin uchrashishgan bo'lishsa, avtomobilning tezligini toping. 97-08-07
A)58 km/soat B)55 km/soat C)65 km/soat
D)60 km/soat E) 50 km/soat

43. Kater va teploxod bir-biriga tomon harakatlanmoqda. Ular orasidagi masofa 120 km. Teploxodning tezligi 50 km/soat. Katerning tezligi teploxodning tezligidan 60% kam. Ular necha soatdan keyin uchrashadi? 96-11-03
A) $1\frac{5}{7}$ B)2 C) $2\frac{1}{4}$ D) $2\frac{1}{3}$ E) $2\frac{1}{5}$

44. A va B pristanlar orasidagi masofa 96 km. A pristandan oqim bo'ylab sol jo'natildi. Huddi shu paytda B pristandan oqimga qarshi motorli qayiq jo'nadi va 4 soatdan keyin uchrashdi. Agar daryo oqimining tezligi 3 km/soat bo'lsa, qayiqning turg'un suvdagi tezligini toping. 98-02-07
A)20 *km/soat* B)19 *km/soat* C)17 *km/soat*
D)24 *km/soat* E)21 *km/soat*

45. Ikki pristan orasidagi masofa 63 km. Bir vaqtning o'zida oqim bo'ylab birinchi pristandan sol, ikkinchisidan motorli qayiq jo'natildi va motorli qayiq solni 3 soatda quvib yetdi. Agar daryo oqimining tezligi 3 km/soat bo'lsa, qayiqning turg'un suvdagi tezligi qanchaga teng bo'ladi? 98-09-06
A)21 B)20 C)22 D)19 E) 18

46. Daryodagi ikki pristan orasidagi masofa 240 km. Ulardan bir vaqtda ikki paroxod bir-biriga qarab yo'lga tushdi. Paroxodlarning tezligi 20 km/soat ga teng. Agar daryo oqimining tezligi 3 km/soat bo'lsa, paroxodlar necha soatdan keyin uchrashishadi? 98-10-10
A)5,5 B)6 C)5 D)6,5 E) 4

47. Daryodagi A va B pristanlar orasidagi masofa 84 km teng. Bir vaqtning o'zida oqim bo'ylab A pristandan kater (turg'un suvdagi tezligi 21 km/soat), B pristandan sol jo'natildi. Agar daryo oqimining tezligi 3 km/soat bo'lsa, qancha vaqtdan keyin kater solga yetib oladi? 00-07-08
A)3,5 B)4 C)4,2 D)3,6 E)4,4

48. Katerning daryo oqimi bo'ylab va oqimga qarshi tezliklari yig'indisi 30 km/soat. Katerning turg'un suvdagi tezligini (km/soat) toping. 02-01-02
A)15 B)16 C)10 D)18 E)20

49. Teploxod birinchi kuni yo'lning yarmini, ikkinchi kuni $\frac{3}{14}$ qismini, uchinchi kuni esa qolgan qismini bosib o'tdi. Teploxod uchinchi kuni yo'lning qancha qismini bosib o'tgan? 02-03-20
A) $\frac{2}{7}$ B) $\frac{5}{14}$ C) $\frac{3}{14}$ D) $\frac{3}{7}$ E) $\frac{1}{7}$

50. Zavodning uchta sexida 1872 ishchi ishlaydi. Birinchi sexda ikkinchi sexdagidan 5 marta ko'p, uchinchi sexda birinchi va ikkinchi sexdagi ishchilarning soniga teng ishchi ishlaydi. Birinchi sexda qancha ishchi ishlaydi? 97-06-04
A)760 B)730 C)780 D)820 E)800

51. Uchta brigada 768 s makkajo'xori yig'ishtirdi. Ikkinchi brigada birinchi brigadaga nisbatan ikki marta ko'p, uchinchi brigada esa ikkala brigada qancha yig'ishgan bo'lsa, o'shancha makkajo'xori yig'di. Ikkinchi brigada qancha makkajo'xori yig'gan? 97-11-04
A)240 B)256 C)210,5 D)302,8 E)128

52. Reja bo'yicha ikki sex 230 ta kir yuvish mashinasi ishlab chiqarishi kerak. Birinchi sex reja bo'yicha ishlab chiqargan mahsulotning $\frac{2}{9}$ qismi ikkinchi sex reja bo'yicha ishlab chiqargan mahsulotning 80% iga teng. Ikkinchi sex reja bo'yicha qancha mahsulot ishlab chiqaradi? 99-04-08
A)50 B)60 C)80 D)40 E)72

53. Zavod tomonidan bolalar bog'chasiga 36 ta uch g'ildirakli va ikki g'ildirakli velosipedlar sovg'a qilindi. Agar hamma velosipedlarning g'ildiraklari 93 ta bo'lsa, uch g'ildirakli velosipedlar nechta? 00-03-07
A)15 B)18 C)20 D)21 E)22

54. Agar maydonning har gektaridan 35 s dan bug'doy hosili olinsa, planni bajarish uchun 20 t yetmaydi, agar har gektaridan 42 s dan hosil olinsa, plan 50 t oshirib bajariladi. Maydonning yuzi necha gektarga teng? 00-08-36
A)100 B)90 C)110 D)70 E)84

55. Bug'doy hosili 3 kunda yig'ib olindi. Birinchi kuni maydonning $\frac{2}{5}$ qismidagi, ikkinchi kuni 4 ga yerdagi va qolgan kuni $\frac{7}{20}$ qism maydondagi hosil yig'ishtirib olingan bo'lsa, necha ga yerga bug'doy ekilgan? 01-06-05
A)12 B)14 C)18 D)16 E)20

56. Do'konga birinchi kuni 5,42 t, ikkinchi kuni birinchi kundagiga qaraganda 2,43 t kam, uchinchi kuni esa dastlabki 2 kundagidan 3,21 t kam un keltirildi. Uchinchi kuni qancha un keltirilgan? 02-01-34
A)13,61 B)2,99 C)7,85 D)5,2 E)6,1

57. Institutdagi talabalarning 35% ini qizlar tashkil qiladi. Yigitlar qizlardan 252 taga ko'p. Talabalarning umumiy sonini toping. 99-01-05
A)840 B)640 C)546 D)740 E)830

58. Mahsulotning bozordagi narxi uning tannarxidan 20% ga qimmat. Bozorda mahsulot yaxshi sotilmagani uchun uning sotuvdagi narxi 5% ga kamaytirildi. Shundan keyin uning narxi 285 so'mga teng bo'ldi. Mahsulotning tannarxini toping. 99-09-05
A)210 B)230 C)250 D)240 E)260

59. O'quvchi birinchi kuni 240 betli kitobning 7,5% ini, ikkinchi kuni undan 12 bet ortiq o'qidi. Kitobni o'qib tugatish uchun o'quvchi yana necha bet kitob o'qishi kerak? 01-02-08
A)18 B)30 C)184 D)192 E)198

60. Yil boshida o'gil bolalar sinfdagi o'quvchilarning 30% ini, qizlar esa 21 nafarni tashkil etardi. Yilning o'rtasida sinfga 6 ta yangi o'g'il bola keldi va 6 ta qiz boshqa sinfga o'tdi. Shundan so'ng o'g'il bolalar sinfdagi o'quvchilarning necha foizini tashkil etadi? 03-02-65
A)45 B)50 C)55 D)60 E) 75

61. Traktorchilar maydonni uch kunda haydab bo'lishdi. Birinchi kuni ular maydonning $\frac{3}{7}$ qismini, ikkinchi kuni butun yer maydonining 40% ini, uchinchi kuni qolgan 72 ga maydonni haydashgan bo'lsa, maydonning yuzi necha gektar bo'ladi? 03-11-59
A)420 B)450 C)500 D)350 E)520

62. It o'zidan 30 m masofada turgan tulkini quva boshladi. It har sakraganda 2 m, tulki esa 1m masafani o'tadi. Agar it 2 marta sakraganda, tulki 3 marta sakrasa, it qancha (m) masofada tulkini quvib etadi? 99-02-06
A)110 B)120 C)116 D)124 E)130

63. Yo'lovchilar poyezdining 3 soatda yurgan masofani yuk poyezdining 4 soatda yurgan masofasidan 10 km ortiq. Yuk poyezdining tezligi yo'lovchilar poyezdining tezligidan 20 km kam. Yuk poyezdining tezligini toping. 99-03-09
A)40 B)45 C)48 D)50 E)52

64. Yaylovda qo'ylar va g'ozlar boqilayotgandi. Bola sanaganda ularning boshlari 30 ta, oyoqlari esa 96 ta chiqdi. Yaylovda qancha qo'y boqilgan? 99-10-02
A)18 B)14 C)10 D)12 E)11

65. Sayohat uchun ma'lum miqdorda pul yig'ish kerak edi. Agar har bir sayohatchi 750 so'mdan to'lasa, to'lovga 1200 so'm yetmaydi, agar har bir sayoxatchi 800 so'mdan to'lasa, keragidan 1200 so'm ortib qoladi. Sayohatda necha kishi qatnashishi kerak edi? 00-01-06
A)38 B)48 C)45 D)46 E)47

66. O'quvchiga testda 30 ta masala berildi. Har bir to'g'ri yechilgan masala uchun 7 ball berilib, noto'g'ri yechilgan har bir masala uchun 12 ball chegirildi. Agar o'quvchi 77 ball to'plagan bo'lsa, u nechta masalani to'g'ri echgan? 00-08-08
A)23 B)26 C)21 D)25 E)19

67. Fermada tovuqva qo'ylar bor. Ularning bosh soni jami 170 ta, oyoqlarining soni esa 440 ta. Qo'ylar soni tovuqlarnikidan nechta kam? 01-02-10
A)50 B)60 C)70 D)80 E)85

68. Bir poyezd A punktdan jo'natilganidan 2 soat o'tgach, ikkinchi poyezd ham shu yo'nalishda jo'nadi va 10 soatdan so'ng birinchi poyezdga yetib oldi. Agar ularning o'rtacha tezliklari yig'indisi 110km/soat bo'lsa, ikkinchi poyezdning o'rtacha tezligi necha km/soat bo'ladi? 01-05-08
A)60 B)50 C)55 D)65 E)70

69. Kostyum paltodan 5950 so'm arzon. Agar palto kostyumdan 1,7 marta qimmat bo'lsa, kostyum necha so'm turadi? 01-08-02
A)9750 B)7550 C)3500 D)8500 E)8504

70. Agar tijoratchi molning 1 kg ini 40 so'mdan sotsa, 1800 so'm zarar ko'radi. 1 kg ini 70 so'mdan sotsa, 900 so'm foyda ko'radi. Tijoratchida necha kg mol bo'lgan? 02-01-42
A)60 B)90 C)70 D)100 E)80

71. 25 metr uzunlikdagi ipni 4 bo'lakka shunday ajratish kerakki, ikkinchi bo'lak birinchi bo'lakdan 2 marta uzun, uchinchi bo'lak birinchi bo'lakdan va to'rtinchi bo'lak ikkinchi bo'lakdan 1 metr qisqa bo'lsin. To'rtinchi bo'lak necha metr? 02-02-08
A)8 B)9 C)7 D)8,5 E)7,5

72. Fermadagi tovuqlar va qo'ylarning umumiy soni 920 ta, oyoqlari 2120 ta. Tovuqlar qo'ylarga qaraganda qancha ko'p? 02-09-01
A)640 B)600 C)340 D)580
E)to'g'ri javob keltirilmagan

73. 2 o'ram bir xil sim xarid qilindi. Birinchi o'ram 3060 so'm, ikkinchi o'ram 1904 so'm turadi. Agar birinchi o'ram ikkinchi o'ramdan 17 m uzun bo'lsa, birinchi o'ramda necha m sim bor? 03-06-29
A)40 B)45 C)47 D)28 E)35

74. 46 o'quvchi 10 ta qayiqda turistik sayrga jo'nashdi. Qayiqlarning bir qismi 4 o'rinli, qolganlari 6 o'rinli edi. Agar qayiqlardagi barcha o'rinlar band bo'lgan bo'lsa, nechta 4 o'rinli qayiq bo'lgan? 03-06-38
A)4 B)5 C)6 D)7 E)8

75. 7 ta kitob va 4 ta jurnalning birgalikdagi bahosi, 4 ta kitob va 7 ta jurnalning birgalikdagi bahosidan 525 so'm ortiq. Kitob jurnalga qaraganda qancha so'm qimmat turishini aniqlang. 03-10-19
A)150 B)175 C)200 D)125 E) 145

76. Muqovasiz kitobning bahosi muqovali kitobga qaraganda 300 so'mga arzon. 6 ta muqovasiz kitobning narxi 4 ta muqovali kitobning narxiga qaraganda 200 so'm arzon. Kitobning bahosi muqovasiz holda necha so'm bo'ladi? 03-11-53
A)450 B)500 C)475 D)800 E)550

77. Suv bilan to'ldirilgan idishning og'irligi 7 kg, yarmigacha to'latilganda esa 3 kg 750 g. Idish to'ldirilgandagi suvning og'irligini (kg) aniqlang. 03-12-09
A)5 B)5,5 C)6 D)6,5 E)5,75

78. Sexda tokarlar, slesarlar va frezerovshchiklar ishlamoqda. Sexda ishlayotgan slesarlarning soni tokarlarning soniga teng, frezerovshchiklarning sonidan esa ikki marta ko'p. Sexda ishlayotgan barcha ishchilarning soni quyidagi sonlardan qaysi biriga teng bo'lishi mumkin? 03-12-10
A)32 B)28 C)25 D)24 E)42

79. Nodirda bor pulning $\frac{1}{8}$ qismi Jahongirdagi pulning $\frac{1}{2}$ qismiga teng. Nodir pulining necha foizini Jahongirga bersa, ularning pullari teng bo'ladi? 03-06-11
A)25 B)37,5 C)40 D)50 E)62,5

80. Nodirda bor pulning $\frac{1}{8}$ qismi Jahongirdagi pulning $\frac{1}{4}$ qismiga teng. Nodir pulining necha foizini Jahongirga bersa, ularning pullari teng bo'ladi? 03-07-16
A)25 B)37,5 C)40 D)50 E)62,5

1-§. Ko'phadlar. Ko'phadning standart shakli.

1. $4a-13a+5a$ ni soddalashtiring. 97-6-40
A) $4a$ B) $-4a$ C) $6a$ D) $-6a$ E) $5a$

2. $7x-14x+6x$ ni soddalashtiring 97-8-02
A) x B) $-2x$ C) $2x$ D) $-x$ E) $4x$

3. $-6-2(2-y)-2y+2$ ni soddalashtiring. 97-9-06
A) 8 B) $-8-4y$ C) $8-4y$ D) -8 E) $-8+4y$

4. $-8-2(1-b)-2b+1$ ni soddalashtiring. 97-9-06
A) 9 B) $9-4b$ C) $9+4b$ D) -9 E) $-9-4b$

5. $a(b-c)+b(c-a)-c(b-a)$ ni soddalashtiring. 98-01-14
A) $-2ac$ B) $2ab$ C) 0 D) 2 E) $2bc-2ac$

6. $a(b+c-bc)-b(c+a-ac)+c(b-a)$ ni soddalashtiring. 98-03-14
A) $-2abc$ B) $2ac$ C) $-2bc$ D) $ab-ac$ E) 0

7. $2x(x-1)-(2x-1)(x+1)$ ifodani ko'phadning standart shakliga keltiring. 96-01-25
A) $4x^2-1$ B) $2x^2-3x$ C) $3x+1$
D) $4x^2-5x+1$ E) $-3x+1$

8. $2\frac{1}{2}\cdot(\frac{4}{5}x+2)-2\frac{1}{3}\cdot(\frac{3}{7}x-6)$ ni soddalashtiring. 96-07-05
A) 19 B) $x-9$ C) $x+19$
D) $20+x$ E) $1\frac{2}{7}x+9$

9. $2\frac{1}{3}\cdot(\frac{6}{7}m+3)-1\frac{2}{3}\cdot(\frac{3}{5}m-3)$ ni soddalashtiring. 97-03-05
A) $m-2$ B) 4 C) $m+12$ D) $\frac{2}{3}m+2$ E) $4+m$

10. $\frac{3}{7}\cdot(1\frac{2}{5}a+2{,}1)+\frac{3}{5}\cdot(\frac{2}{3}a-\frac{5}{6})$ ni soddalashtiring. 97-07-05
A) $a+\frac{2}{5}$ B) $a+1{,}3$ C) $1\frac{2}{3}a-\frac{2}{5}$ D) $0{,}6+a$
E) $2\frac{1}{3}a+1\frac{1}{6}$

11. $2\frac{2}{3}\cdot(1\frac{1}{2}a-2\frac{1}{4})+1\frac{1}{5}\cdot(2\frac{1}{2}a-\frac{5}{6})$ ni soddalashtiring. 97-10-05
A) $a+5$ B) $7a-7$ C) 7 D) $1\frac{1}{2}a-5$ E) $6\frac{1}{3}a$

12. $\frac{4}{9}\cdot\left(4\frac{1}{2}y-1\frac{1}{2}\right)-\frac{2}{7}\cdot\left(1\frac{1}{6}-3\frac{1}{2}y\right)$ ni soddalashtiring. 98-04-13
A) $0{,}2y-1$ B) $2y+1$ C) $3y-1$ D) $\frac{2}{3}y-\frac{1}{3}$
E) $y-1$

13. $P=(\frac{1}{3}x-\frac{1}{3}y)-(x+2y)$ va
$Q=\frac{1}{3}x+\frac{1}{3}y-(x-y)$ ko'phadning ayirmasini toping 98-08-24
A) $-\frac{11}{3}y$ B) $4y$ C) $-4y$ D) $\frac{13}{3}y$ E) $-\frac{13}{3}y$

14. Agar $a+b+3=10$ bo'lsa.
$3{,}8a+7{,}7+1{,}7b+2{,}5a+11{,}2+4{,}6b$ ifodani qiymatini toping. 99-08-10
A) 53 B) 58 C) 72 D) 63 E) 70

15. Agar $a=\frac{1}{2b}$ bo'lsa, a^2b^2-ab+1 ifodaning qiymatini toping. 99-08-23
A) $\frac{3}{4}$ B) $1\frac{1}{2}$ C) 1 D) $1\frac{1}{4}$ E) 2

16. Agar $x+y=-p$ va $xy=q$ bo'lsa,
$x(1+y)-y(xy-1)-x^2y$ ko'phadni qiymatni toping. 02-08-03
A) $pq+q-p$ B) $p-q+pq$ C) $p+q-pq$
D) $p+q+pq$ E) $-p-q-pq$

17. Agar $f(x)=(x-\frac{1}{3})(2x+\frac{1}{4})$ bo'lsa,
$f(1)$ ni toping. 96-09-67
A) $-4{,}5$ B) $\frac{7}{12}$ C) $4{,}5$ D) $1{,}5$ E) -1

18. Agar $f(x)=(2x+1)(\frac{3}{x}-3)$ bo'lsa,
$f(-1)$ ni toping. 96-10-17
A) 0 B) 6 C) -6 D) -3 E) 18

19. $(\alpha x-2y)(x+3y)=\alpha x^2+5xy-6y^2$ ayniyatdagi noma'lum koeffitsient α ni toping. 96-03-72
A) $\frac{5}{2}$ B) 2 C) $\frac{5}{3}$ D) $\frac{7}{3}$ E) 3

20. $(\alpha x+2y)(3x+\beta y)=\gamma x^2+7xy+y^2$ ayniyatdagi noma'lum koeffitsiyentlardan biri α ni toping. 96-09-12
A) 3 B) 2 C) 4 D) $\frac{3}{2}$ E) $\frac{5}{2}$

21. $(\alpha x+2y)(3x+\beta y)=\gamma x^2+7xy+y^2$ ayniyatdagi noma'lum koeffitsientlardan biri γ ni toping. 96-12-70
A) 5 B) 6 C) 7 D) 4 E) 2

22. $(-3x+\alpha y)(\beta x-2y)=\gamma x^2+7xy+2y^2$ ayniyatdagi no'malum koeffitsientlardan biri β ni toping. 96-11-12
A) 1 B) -1 C) 2 D) -2 E) 3

23. Agar $\left(ax^2-bx\right)+\left(bx^2+ax\right)=-12x$ ayniyat bo'lsa,
a va b ning qiymatini toping. 98-02-10
A) $a=-6;\ b=-6$ B) $a=8,\ b=-8$
C) $a=-6;\ b=6$ D) $a=6;\ b=-6$
E) $a=6,\ b=6$

24. Agar $ax^2+kx+kx^2-ax=x^2-17x$ ayniyat bo'lsa, k ning qiymati qanchaga teng bo'ladi?
A) -6 B) -8 C) -7 D) -9 E) 8

25. Agar $a(x-1)^2+b(x-1)+c=2x^2-3x+5$ ayniyat bo'lsa, $a+b+c$ yig'indi nechaga teng bo'ladi?
A) 7 B) 8 C) 6 D) 4 E) 5

26. Agar $(x-1)^2(x+1)^3+3x-1$ ifoda standart shakldagi ko'phad ko'rinishida yozilsa, koeffisientlarining yig'indisi nechaga teng bo'ladi? 98-06-19
A)10 B)4 C)2 D)3 E)1

27. Agar $\left(x^3-x+1\right)^3+x$ ifoda standart shakldagi ko'phad ko'rinishida yozilsa, x ning toq darajalari oldidagi koeffitsiyentlar yig'indisi nechaga teng bo'ladi? 98-11-68
A)1 B)7 C)4 D)5 E)3

28. $f(x)=(x^3+2x^2-1)^2-3x^2$ ko'p hadning juft darajali hadlari koeffitsientlarining yig'indisi topilsin. 03-03-26
A)–6 B)–2 C)3 D)–3 E)–1

29. Agar bo'luvchi $x-2$ ga, bo'linma $x+3$ ga, qoldiq 5 ga teng bo'lsa, bo'linuvchi nimaga teng? 00-02-17
A) x^2-3x+6 B) x^2-5x-6 C) x^2+x-1
D) x^2-5 E) x^2-6

30. $x^3-3x^2-4x+12$ ko'phad quyidagilarning qaysi biriga bo'linmaydi? 03-05-14
A) $x+3$ B) $x-3$ C) $x+2$ D) $x-2$
E) x^2-x-6

31. $x^{2001}+3x^{2000}+3x+13$ ko'phadni $x+3$ ga bo'lganda qoldiq necha bo'ladi? 02-08-04
A)4 B)3 C)5 D)2 E)1

32. $x^6+x^4-3x^2+5$ ko'phadni $x^2-\sqrt{3}$ ga bo'lgandagi qoldiqni toping. 02-08-05
A)8 B)7 C)6 D)9 E)5

33. Quyida keltirilgan tengliklardan qaysilari ayniyat emas?
1) $(x+a)\cdot(x-b)=x^2-(a-b)x-ab$
2) $(x-c)\cdot(x-d)=x^2+(c+d)x+cd$
3) $(x-e)\cdot(x+d)=x^2-(e-d)x-ed$
4) $6ab+\left(2a^3+b^3-\left(3ab^2-\left(a^3+2ab^2-b^3\right)\right)\right)=$
$=3a^3-ab^2+6ab$
5) $5a^2-3b^2-((a^2-2ab-b^2)-(5a^2-2ab-b^2))=9a^2+4ab-3b^2$
2005
A)1;2;4 B)1;3;4 C)1;2;5 D)2;3;5 E)3;4;5

34. Quyida keltirilgan tengliklardan qaysilari ayniyatlar?
1) $(x+a)\cdot(x-b)=x^2-(a-b)x-ab$
2) $12x^2+y^2-(8x^2-5y^2-(10x^2+$
$+(5x^2-6y^2)))=-x^2+12y^2$
3) $6ab+\left(2a^3+b^3-\left(3ab^2-\left(a^3+2ab^2-b^3\right)\right)\right)=$
$=3a^3-ab^2+6ab$
4) $5a^2-3b^2-((a^2-2ab-b^2)-$
$-(5a^2-2ab-b^2))=9a^2-3b^2$
5) $3a-(2c-(6a-(c-b)+c+(a+8b)-6c))=$
$=10a+9b-8c$
2005
A)1;2;4 B)3;4;5 C)2;4;5 D)1;2;3 E)1;3;5

35. Quyida keltirilgan tengliklardan qaysilari ayniyat emas?
1) $(x+a)\cdot(x-b)=x^2+(a-b)x-ab$
2) $(x-c)\cdot(x-d)=x^2+(c-d)x+cd$
3) $(x-c)\cdot(x+d)=x^2+(c-d)x-ed$
4) $5a^2-3b^2-((a^2-2ab-b^2)-$
$-(5a^2-2ab+b^2))=9a^2-3b^2$
5) $3a-(2c-(6a-(c-b)+c+(a+8b)-6c))=$
$=10a+9b-8c$
2005
A)2;3;4 B)1;3;4 C)2;4;5 D)1;2;5 E)1;3;5

36. $a(b-c)-b(c-a)-c(b-a)$ ni soddalashtiring. 2006
A)2ab B)-2ac C)2ab-2bc D)0

37. $2x(x-1)-(2x+1)(x-2)$ ifodani ko'phadning standart shakliga keltiring. 2006
A) $2x^2-3x$ B) $4x^2-1$ C) $-x+1$ D) $x+2$

2-§. Qisqa ko'paytirish formulalari. Ko'paytuvchilarga ajratish.

1. $(a+b)(a-b+1)-(a-b)(a+b-1)$ ni soddalashtiring. 00-06-17
A)2b B)2a-2b C)2a D) $2a^2+2b^2$
E) $2b^2-2a$

2. $(a+3b)(a+b+2)-(a+b)(a+3b+2)$ ni ko'phad shaklida tasvirlang. 01-08-12
A)2a-b B)a-2b C)4a+2b D)4b E)6ab

3. $(2a-b)^2-(2a+b)^2$ ni soddalashtiring. 96-01-17
A)0 B) $-2b^2$ C) $-8ab$ D) $-4ab+2b^2$ E) $2b^2$

4. $(a-3b)^2-(a+b)^2$ ni soddalashtiring. 96-09-68
A) $8b^2-8ab$ B) $8b^2$ C) $2b^2-8ab$ D) $-8b^2$
E) $2b^2-4ab$

5. $(1-2a)^2+(1+2a)(2a-1)$ ni soddalashtiring. 96-10-18
A) $8a^2-4a$ B) $-2a$ C) $-2a+2$
D) $4a^2-2a$ E) $8a^2$

6. $(x-1)(2-x)+(2x-3)^2$ ifodani ko'phadning standart shakliga keltiring. 96-10-26

A) $5x^2+9x-7$ B) $3x^2-8$ C) $3x^2-9x+7$
D) $12x+4-x^2$ E) $5x^2-10x+1$

7. $(4x-3)^2-x(4x+1)$ ifodani ko'phadning standart shakliga keltiring. 96-09-76

A) $2x^2+x-9$ B) $12x^2-25x+9$ C) $4x^2-13x$
D) $8x^2-x+7$ E) $12x^2-23x+9$

8. $(b-c)(b^2+bc+c^2)$ ifodaning $b=-2$ va $c=1$ bo'lgandagi qiymatini hisoblang. 96-11-20

A)7 B)5 C)-9 D)-7 E)9

9. $(x^2+xy+y^2)(x-y)$ ifodaning $x=1$ va $y=-2$ bo'lgandagi qiymatini hisoblang. 96-12-20

A)5 B)-9 C)7 D)9 E)-7

10. $12^2-(x+7)^2-(5-x)\cdot(19+x)$ ni soddalashtiring. 98-11-08

A)0 B)50 C)140 D)90 E)85

11. $(2a+3b)(4a^2-6ab+9b^2)$ ifodaning $a=2$ va $b=1$ dagi qiymatini toping. 00-05-21

A)91 B)93 C)96 D)99 E)101

12. $(x-3)(x^2+3x+9)$ ifodaning $x=\frac{1}{2}$ dagi qiymatini hisoblang. 00-05-23

A) $-26,875$ B) $\frac{343}{27}$ C) $27\frac{1}{2}$ D) $-26\frac{1}{2}$
E)27,125

13. $(x^4-x^2y^2+y^4)(x^2+y^2)$ ko'paytma o'xshash hadlar ixchamlangandan keyin nechta qo'shiluvchidan iborat bo'ladi? 96-06-10

A)3 B)4 C)2 D)5 E)6

14. $(y^4-y^2+1)(y^2+1)+(y-1)(y+1)$ ni soddalashtirgandan keyin hosil bo'lgan ko'phadning nechta hadi bo'ladi? 97-02-10

A)3 B)4 C)2 D)5 E)6

15. x^2-x-2 kvadrat uchhadni chiziqli ko'paytuvchilarga ajrating 96-03-18

A) $(x-1)(x+2)$ B) $(x-1)(x-2)$
C) $(x+1)(x+2)$ D) $(x+1)(x-2)$
E) $(1-x)(x+2)$

16. x^2-3x+2 kvadrat uchhadni chiziqli ko'paytuvchilarga ajrating 96-11-19

A) $(x-1)(x+2)$ B) $(x-2)(x+1)$ C) $(x-1)(x-2)$
D) $(x+1)(x+2)$ E) $(1-x)(x+2)$

17. x^2+x-2 kvadrat uchhadni chiziqli ko'paytuvchilarga ajrating 96-12-19

A) $(x-1)(x-2)$ B) $(x-1)(x+2)$
C) $(1-x)(x+2)$ D) $(x-1)(x-2)$
E) $(x+1)(x+2)$

18. $2a^2b-3a+10ab^2-15b$ ko'phadni ko'paytuvchilarga ajrating. 98-01-18

A) $(2ab+3)(a-5b)$ B) $(a+5b)(2ab-3)$
C) $(3+ab)(2a-5b)$ D) $(2a^2+b)(b-5a)$
E) $(ab+5)(2a-3b)$

19. $2n^2-3an-10n+15a$ ko'phadni ko'paytuvchilarga ajrating. 98-08-18

A) $(5-n)(3a-2n)$ B) $(5+n)(2n-3a)$
C) $(3a-n)(5-2n)$ D) $(2n+3a)(n+5)$
E) $(2n-5)(n+3a)$

20. $b^2+ab-2a^2-b+a$ ni ko'paytuvchilarga ajrating. 00-06-09

A) $(a-b)(2a-b)$ B) $(a+b)(2a-b-1)$
C) $(a-b)(2a-b-1)$ D) $(b-2a)(a-b+1)$
E) $(b-a)(2a+b-1)$

21. $3x^2-6xm-9m^2$ ni ko'paytuvchilarga ajrating. 00-08-37

A) $3(x+m)(x-3m)$ B) $(x-3m)^2$
C) $3(x-m)(x+3m)$ D) $(3x-m)^2$
E) $3(x-m)(x-3m)$

22. $(x^2+1)(x^4-x^2+1)+(x^3-1)^2$ ni soddalashtirgandan keyin hosil bo'lgan ko'phadning nechta hadi bor? 97-08-10

A)5 B)4 C)3 D)6 E)2

23. $(y^3-1)^2+(y^2+1)(y^4-y^2+1)$ ni soddalashtirgandan keyin nechta haddan iborat bo'ladi? 97-12-09

A)4 B)5 C)6 D)3 E)2

24. $(a^2+16)^2-64a^2$ ni ko'paytuvchilarga ajrating. 96-07-18

A) $(a^2-8)\cdot(a^2+4)$ B) $(a-2)^2\cdot(a+2)^2$
C) $(a-4)^2\cdot(a+4)^2$ D) $a^2\cdot(a^2-60)$
E) $(a-8)^2\cdot(a+8)^2$

25. $1-(2x-3)^2$ ni ko'paytuvchilarga ajrating. 97-01-13

A) $2(x+2)(x+1)$ B) $2(x-2)(x+1)$
C) $4(2-x)(x-1)$ D) $2(1-x)(x-2)$
E) $(2-3x)(x-1)$

26. $(x^2+1)^2-4x^2$ ni ko'paytuvchilarga ajrating. 97-03-18

A) $(x^2+1)(x-1)^2$ B) $x^2(x^2-2)$
C) $(x-1)^2(x+1)^2$ D) $(x-2)^2(x^2+1)$
E) $(x+2)^2(x-2)^2$

27. $9-(2c-1)^2$ ni ko'paytuvchilarga ajrating. 97-06-13

A) $2(c-1)(c+2)$ B) $4(c-2)(c+1)$
C) $(3c-1)(c+4)$ D) $(2c+1)(4c-3)$
E) $4(c+1)(2-c)$

28. $(a^2+4)^2-16a^2$ ni ko'paytuvchilarga ajrating. 97-07-18

A) $(a^2+2)(a^2-2)$ B) $(a+2)^2(a-2)^2$

C) $a^2(4+a^2)$ D) $(a^2-2)(a+2)^2$

E) $(a-4)^2(a+4)^2$

29. $(x^2+9)^2-36x^2$ ni ko'paytuvchilarga ajrating. 97-10-18

A) $(x^2-5)(x^2+4)$ B) $(x-3)^2(x+3)^2$

C) $(x-6)^2(x+6)^2$ D) $x^2(x^2-6)$

E) $(x^2-3)(x+3)^2$

30. $1-(8a-3)^2$ ni ko'paytuvchilarga ajrating. 97-11-13

A) $8(4a+1)(1-2a)$ B) $(16a-1)(4a-3)$

C) $4(2a+1)(4a-1)$ D) $4(a-2)(a+3)$

E) $8(1-2a)(4a-1)$

31. b^7x-bx^7 ni ko'pi bilan nechta ko'paytuvchiga ajratish mumkin. 97-04-19

A)8 ta B)7 ta C)4 ta D)9ta E)6 ta

32. x^4+x^2+1 ni ko'paytuvchilarga ajrating. 97-05-16

A) $(x^2+x+1)(x^2+x-1)$

B) $(x^2+x+1)(x^2-x+1)$

C) $(x^2+x+1)(x^2-x-1)$

D) $(x^2+x+1)(-x^2+x-1)$

E)ko'paytuvchilarga ajratib bo'lmaydi

33. a^2+b^2 ni $(a+b)$ va ab orqali ifodalang. 98-12-25

A) $(a+b)^2-2ab$ B) $(a+b)^2-ab$

C) $(a+b)^2-4ab$ D) $(a+b)\cdot ab$

E) $(a+b)^2+2ab$

34. $x^{12}-1$ ni ko'patuvchilarga ajratganda, nechta rasional ko'paytuvchidan iborat bo'ladi? 99-09-09

A)4 B)5 C)6 D)8 E)7

35. $a^5+a^4-2a^3-2a^2+a+1$ ni ko'paytuvchilarga ajrating. 99-10-07

A) $(a+1)^2(a-1)^3$ B) $(a+1)^3(a-1)^2$

C) $(a+1)^4(a-1)$ D) $(a+1)(a-1)^4$

E) $(a^2+1)^2(a-1)$

36. $(x^4+x^2+1)(x^4+x^2+2)-12$ nechta ratsional koeffitsientli ko'paytuvchilarga ajraladi? 00-01-16

A)4 B)2 C)3 D)5 E)6

37. $a^3+9a^2+27a+19$ ni ko'paytuvchilarga ajrating. 00-05-25

A) $(a+1)(a^2-3a+19)$ B) $(a+1)(a^2+3a+19)$

C) $(a-1)(a^2+8a+19)$ D) $(a-1)(a^2+3a+19)$

E) $(a-1)(a^2+8a+19)$

38. $(a+b)(a+b+2)-(a-b)^2+1$ ni ko'paytuvchilarga ajrating. 99-04-16

A) $(a+b)(2a-1)$ B) $(a+b)(b+1)$ C) $2b(a+1)$

D) $(a+b)(2b+1)$ E) $2b+1)(2a+1)$

39. Agar $\frac{x}{y}=2$ bo'lsa, x^2-4y^2 nimaga teng? 02-01-39

A)4 B)8 C)0 D)–8 E)–4

40. a^4+4b^4 ni ratsional ko'paytuvchilarga ajrating. 02-10-18

A) $(a^2-2ab+2b^2)(a^2+2ab+2b^2)$

B) $(a^2-2b^2)^2$ C) $(a^2+2b^2)^2$

D) $(a^2-2b^2)(a^2+2b^2)$ E) $(a^2+b^2)(a^2-4b^2)$

41. $(a+b+c)(ab+bc+ac)-abc$ ni ko'paytma shaklida yozing. 03-08-35

A) $(a+b)(a+c)(b+c)$ B) $a^2+b^2+c^2$

C) $(a+b)(b+c)(a-c)$ D) $a^2+b^2-c^2$ E)0

42. $(a+b)(a+b+2)-(a-b)(a-b-2)$ ni ko'paytuvchilarga ajrating. 01-08-08

A) $2(a+b)(b+1)$ B) $4a(b+1)$ C) $2a(b-1)$

D) $4a(b-1)$ E) $(2a+1)(b-1)$

43. Agar $a+b+c=0$ bo'lsa, $a^3+a^2c-abc+b^2c+b^3$ ifodaning qiymatini toping. 02-06-02

A)0 B)1 C)2 D)–1 E)–2

44. $x=71,8$ va $y=70,8$ bo'lsa, $x^3-y^3-2y^2-3y-1+x^2-2xy$ ni hisoblang. 97-09-74

A)1 B)21 C)79 D)87,5 E)92,1

45. Agar $\begin{cases} x^3-y^3=3x^2y+5 \\ xy^2=1 \end{cases}$ bo'lsa, $\frac{x-y}{2}$ ni hisoblang. 97-04-25

A)2 B)1 C)3 D)4,5 E)1,5

46. Agar $\begin{cases} x^3-3x^2y=y^3+20 \\ 3xy^2=7 \end{cases}$ bo'lsa, $\frac{x-y}{3}$ ni hisoblang. 97-09-85

A)3 B)2 C)1 D)0 E)6

47 $\begin{cases} x^2+y^2=20, \\ xy=8 \end{cases}$ $(x+y)^2=?$ 98-03-17

A)30 B)34 C)42 D)40 E)36

48. $\begin{cases} x^2+y^2=10, \\ xy=3. \end{cases}$ $(x+y)^2=?$ 98-10-65

A)13 B)7 C)16 D)19 E)22

49. $\begin{cases} x^3+y^3=10 \\ 3xy^2+3x^2y=17 \end{cases}$ $x+y=?$ 99-06-42

A)3 B)2 C)$\sqrt{3}$ D)$3\sqrt{3}$ E)9

50. Agar $\begin{cases} x^2 - 5xy + y^2 = -47, \\ xy = 21 \end{cases}$ bo'lsa,

$|x+y| + |x-y|$ ning qiymatini toping. 01-01-11

A)8 B)10 C)12 D)14 E)9

51. $\begin{cases} x^3 + y^3 = 35 \\ x + y = 5 \end{cases}$ $x \cdot y = ?$ 02-06-32

A)3 B)4 C)5 D)6 E)7

52. $\begin{cases} x^3 + y^3 = 35 \\ x^2y + xy^2 = 30 \end{cases}$ tenglamalar sistemasining

yechimlaridan iborat barcha x va y larning yig'indisini toping. 03-09-06

A)0 B)2 C)6 D)10 E)12

53. Agar $p^2 + pq = 96$ va $q^2 + pq = 48$ bo'lsa, $p+q$ ning qiymati qanchaga teng bo'ladi? 98-09-16

A)12 B)14 C)$\pm 12\sqrt{2}$ D)± 12 E)$\pm 14\sqrt{2}$

54. Agar $x^2 - xy = 28$ va $y^2 - xy = -12$ bo'lsa, $|x-y|$ ning qiymatini aniqlang. 01-11-12

A)7 B)5 C)6 D)4 E)8

55. Agar $m^2 - mn = 48$ va $n^2 - mn = 52$ bo'lsa, $m-n$ ni nechaga teng? 98-02-16

A)10 B)8 C)± 10 D)± 8 E)9

56. Agar $x - y = 5$ va $xy = 7$ bo'lsa, $x^3y + xy^3$ ning qiymati nechaga teng bo'ladi? 98-04-05

A)162 B)271 C)354 D)216 E)273

57. Agar $x^2 + y^2 = 281$ va $x - y = 11$ bo'lsa, xy qanchaga teng bo'ladi? 98-11-60

A)80 B)160 C)-80 D)40 E)-160

58. Agar $b - a = 12$ va $-ab + b^2 = 144$ bo'lsa, b ning qiymati nechaga teng bo'ladi? 98-12-19

A)12 B)-12 C)36 D)6 E)$\sqrt{12}$

59. $x + y = 3$; $xy = 1$ $x^5y + xy^5 = ?$ 98-12-64

A)47 B)29 C)51 D)24 E)18

60. Agar $a^2 + b^2 + ab = 91$ va $a^2 + b^2 = 61$ bo'lsa, $|a+b|$ ning qiymati nechaga teng bo'ladi? 99-09-23

A)10 B)9 C)11 D)12 E)13

61. Agar $a + b = 10$ va $a^2 + b^2 = 60$ bo'lsa, $a^4 + b^4 = ?$ 02-02-05

A)2800 B)3400 C)3000 D)2600 E)2900

62. Agar $8a^3 - b^3 = 37$ va $ab^2 - 2a^2b = -6$ bo'lsa, $2a - b$ ning qiymatini toping. 02-07-54

A)1 B)-1 C)2 D)-2 E)-3

63. Agar $x^3 + 3xy^2 = 185$ va $y^3 + 3x^2y = 158$ bo'lsa, $x + y$ ning qiymatini toping. 02-12-29

A)4 B)5,5 C)2 D)3 E)2,5

64. Agar $x^2 - 4xy + y^2 = 4 - 2xy$ va $x + y = 12$ bo'lsa, xy ning qiymatini toping. 02-12-30

A)32 B)35 C)30 D)34 E)36

65. $x^2 + y^2 = 17$; $x^3y^3 = 343$. $x^4 + y^4 - ?$ 03-10-33

A)167 B)176 C)187 D)191 E)205

66. $b + a = 18$; $a^2 + b^2 = 170$ ab - ? 03-12-03

A)45 B)72 C)77 D)80 E)84

67. $a^2 + \frac{9}{a^2} = 22$ bo'lsa, $a - \frac{3}{a}$ nimaga teng? 99-06-40

A)3 B)-3 C)2 D)± 4 E)1

68. Agar $a - \frac{1}{a} = \frac{2}{3}$ bo'lsa, $\frac{a^4+1}{a^2}$ ning qiymatini toping. 00-06-07

A) $2\frac{4}{9}$ B) $1\frac{1}{3}$ C) $1\frac{5}{9}$ D) $2\frac{5}{9}$ E) $4\frac{2}{3}$

69. Agar $a + b = 7$ va $ab = 2$ bo'lsa, $a^2b^4 + a^4b^2$ ning qiymatini toping. 00-06-19

A)196 B)180 C)112 D)98

E)To'g'ri javob keltirilmagan

70. Agar $a + \frac{1}{a} = 3$ bo'lsa, $\frac{a^6+1}{a^3}$ ning qiymatini toping. 01-08-07

A)27 B)24 C)18 D) $21\frac{1}{3}$

E)aniqlab bo'lmaydi

71. Agar $a + \frac{1}{a} = 3$ bo'lsa, $\frac{a^4+1}{2a^2}$ ning qiymati nimaga teng? 02-09-06

A)3,5 B)4 C)5,5 D)7 E)10

72. Agar $a + b + c = 12$; $ab + bc + ac = -15$ bo'lsa, $a^2 + b^2 + c^2$ ning qiymatini toping. 02-09-16

A)84 B)114 C)144 D)174 E)204

73. Agar $a + a^{-1} = 3$ bo'lsa, $a^2 + a^{-2}$ ni hisoblang. 08-

A)7 B)4 C)9 D)13 E)12

74. Agar $a + a^{-1} = 5$ bo'lsa, $a^3 + a^{-3}$ ni hisoblang 08-

A)110 B)70 C)80 D)90 E)100

75. Agar $\frac{4x^2 - 4xy + 3y^2}{2y^2 + 2xy - 5x^2} = 1$ bo'lsa, 03-06-08

$\frac{x+y}{x-y}$ ning qiymatini toping.

A)2 B)-2 C)$\frac{1}{2}$ D)$-\frac{1}{2}$ E)-1

76. Agar $\frac{4b+a}{5a-7b} = 2$ bo'lsa, $\frac{3a^2 - 2ab + b^2}{5a^2 + 2b^2}$ ning qiymati nimaga teng bo'ladi? 99-04-18

A)2 B)$\frac{1}{3}$ C)0,5 D)$-\frac{9}{22}$ E)$-\frac{5}{11}$

77. Agar $\frac{4x^2-4xy+3y^2}{2y^2+2xy-5x^2}=1$ bo'lsa, $\frac{x+y}{y-x}$ ning qiymatini toping. 03-07-13

A)2 B)–2 C)$\frac{1}{2}$ D)$-\frac{1}{2}$ E)–1

78. $p^2-16pq+64q^2-12$ ning eng kichik qiymatini toping. 98-02-09

A)–10 B)–12 C)–11 D)–13 E)–8

79. $(2a-1)(2a+1)+3b(3b-4a)$ ning eng kichik qiymatini toping 99-04-17

A)–1 B)0 C)–2 D)1 E)–0,5

80. $x^2-2x+2y^2+8y+9$ ko'phadning eng kichik qiymatini aniqlang. 99-08-22

A)0 B)8 C)1 D)9 E)–1

81. $(8+(2x-4))(8-(2x-4))$ ifoda x ning qanday qiymatida eng katta qiymatga erishadi? 99-10-13

A)–2 B)2,5 C)1,5 D)–1,5 E)2

82. $4y(5x-y)-(5x-2)(5x+2)$ ning eng katta qiymatini toping. 00-06-18

A)10 B)5 C)4 D)2 E)mavjud emas

83. $2a^2-2ab+b^2-2a+2$ ning eng kichik qiymatini toping. 02-09-17

A)–2 B)1 C)2 D)4 E)8

84. $x(x+1)(x+2)(x+3)$ ko'paytmaning eng kichik qiymatini toping. 01-02-09

A)3 B)2 C)1 D)–1 E)–2

85. x ning qanday qiymatida $P(x)=x^3+4x^2-12x+17$ ko'phadning qiymatini biror sonning kvadrati shaklida tasvirlash mumkin? 00-02-18

A)–2 B)2 C)1 D)3 E)–3

86. $(x-y)^3-(z-y)^3+(z-x)^3$ ko'phadni ko'paytuvchilarga ajrating. 00-10-77

A)$3(x-y)(y-z)(x-z)$

B)$-3(x-y)(z-y)(x-z)$

C)$3(y-x)(y-z)(z-x)$

D)$-3(x-y)(z-y)(z-x)$

E)ko'paytuvchilarga ajralmaydi

87. $(y^2-1)^2-(y^2-1)(y^4+y^2+1)$ ni soddalashtirgandan keyin hosil bo'lgan ko'phadning nechta hadi bo'ladi? 2006

A)5 B)4 C)3 D)6

3-§. Ratsional ifodalar. Ratsional ifodalarni soddalashtirish.

1. $1.-\frac{a-1}{a+b}=\frac{a+1}{a+b}$; $2.-\frac{a-1}{a+b}=\frac{-a-1}{a+b}$;
$3.-\frac{a-1}{a+b}=\frac{1-a}{a+b}$; $4\ \frac{a-1}{a+b}=\frac{1-a}{a-b}$

tengliklardan qaysi biri ayniyat? 96-06-12

A)1 B)2 C)3 D)4 E)hech biri

2. 1) $2a^2-4ab+2b^2=-(a-b)^2$

2) $-\frac{x^3-y^3}{x^2+xy+y^2}=x-y$

3) $-(a-b+c)=-a+b-c$

4) $-\frac{a^2-1}{b}=\frac{a^2-1}{b}$. 97-02-12

Ushbu tengliklardan qaysi biri ayniyat?

A)1 B)2 C)3 D)4

E)hech qaysi biri ayniyat emas

3. Quyidagi keltirilgan tengliklardan qaysi biri ayniyat? 97-08-12

A)$\frac{m^3-n^3}{m+n}=m^2+mn+n^2$

B)$2mn-n^2-m^2=(m+n)^2$

C)$m-(m-n)-(m-n)=2n-m$

D)$-\frac{m-n}{n}=-\frac{m-n}{m}$

E)$m^3n^3=(mn)^9$

4. Quyidagi tengliklardan qaysi biri ayniyat? 97-12-11

1) $\frac{p^2-q^2}{p^2+q^2}=-\frac{p^2-q^2}{q^2-p^2}$;

2) $\frac{p^2-q^2}{p^2+q^2}=-\frac{p^2-q^2}{p^2+q^2}$;

3) $-\frac{p^2+q^2}{p^2-q^2}=\frac{p^2+q^2}{q^2-p^2}$;

4) $-\frac{p^2-q^2}{q^2-p^2}=\frac{p^2-q^2}{p^2+q^2}$;

A)1 B)2 C)3 D)4

E)Bular ichida ayniyat yo'q

5. $\frac{x^2-3xy}{9y^2-x^2}$ kasrni qisqartiring. 96-03-21

A)$\frac{x}{x+3y}$ B)$-\frac{x}{x+3y}$ C)$\frac{x}{x-3y}$

D)$-\frac{x}{x-3y}$ E)$\frac{y}{x+3y}$

6. $\frac{a^2-2ab}{4b^2-a^2}$ kasrni qisqartiring. 96-11-22

A)$\frac{a}{a+2b}$ B)$\frac{a}{a-2b}$ C)$-\frac{a}{a+2b}$ D)$-\frac{a}{a-2b}$

E)$-\frac{b}{a+2b}$

7. $\frac{x^2+3xy}{9y^2-x^2}$ kasrni qisqartiring. 96-12-22

A)$\frac{x}{x+3y}$ B)$-\frac{x}{x-3y}$ C)$\frac{x}{x-3y}$

D)$\frac{y}{3y-x}$ E)$\frac{x}{3y-x}$

8. $\frac{x^{2\pi}-y^{2\pi}}{x^{\pi}+y^{\pi}}$ ni qisqartiring. 98-05-12

A) x^2+y^2 B) x^2-y^2 C) $x-y$ D) $x^{\pi}-y^{\pi}$ E)0

9. $\frac{x^2-3x+2}{x^2-1}$ kasrni qisqartiring. 96-05-26

A) $\frac{x+2}{x-1}$ B) $\frac{x+2}{x+1}$ C) $\frac{x-2}{x-1}$ D) $\frac{x-2}{x+1}$ E) $\frac{x+3}{x-1}$

10. $\frac{x^3+x^2+x+1}{x^2+1}$ ni soddalashtiring. 96-12-72

A) $x-1$ B) x C) $2x$ D) $x+1$ E) $x+2$

11. $\frac{x^2-16}{x^2-5x+4}$ ni qisqartiring. 97-02-27

A) $\frac{4+x}{1-x}$ B) $\frac{4-x}{x+1}$ C) $\frac{x+4}{x+1}$ D) $\frac{x-4}{x+1}$ E) $\frac{x+4}{x-1}$

12. $\frac{y^2-3y-4}{y^2-1}$ ni qisqartiring. 97-08-26

A) $\frac{y+4}{y+1}$ B) $\frac{4-y}{y-1}$ C) $\frac{y+4}{y-1}$ D) $\frac{y-4}{y+1}$ E) $\frac{y-4}{y-1}$

13. $\frac{n^2-7n+6}{n^2-1}$ ni qisqartiring. 97-12-26

A) $\frac{n+6}{n-1}$ B) $\frac{n-6}{n+1}$ C) $\frac{n+6}{n+1}$ D) $\frac{n-6}{n-1}$ E) $\frac{n-3}{n+1}$

14. $\frac{x^6-x^4}{x^3+x^2}$ ni qisqartiring. 98-11-09

A) x^3-x^2+1 B) x^3+x^2+1 C) x^3-x^2

D) x^3+x^2 E) x^3+1

15. $\frac{a^8-a^4}{a^4+a^2}$ ni qisqartiring. 00-08-54

A) a^6 B) a^4-a^2 C) a^4-1 D) a^4+a^2 E) a^2-a^4

16. Agar $x-y=xy$ va $x\cdot y\neq 0$ bo'lsa, $\frac{1}{x}-\frac{1}{y}$ ni toping. 02-01-43

A) $\frac{1}{xy}$ B) $\frac{1}{x-y}$ C) $y-x$ D) -1 E)0

17. $a=\frac{25}{a}-b$ va $b=\frac{144}{b}-a$ bo'lsa, $|a+b|$ ni hisoblang. 02-08-01

A)13 B)12 C)5 D) $\sqrt{119}$ E)14

18. Agar $\frac{1}{n}+\frac{1}{m}=\frac{1}{7}$ va $m+n=-4$ bo'lsa, mn ning qiymatini toping. 02-12-26

A)20,5 B)$-$20,5 C)21 D)$-$28 E)28

19. $\frac{4a^2-12ab+9b^2}{2a^2-ab-3b^2}$ ni soddalashtiring. 98-07-26

A) $\frac{3a-2b}{a+b}$ B) $\frac{3b-2a}{a+b}$ C) $\frac{2a-3b}{a+b}$

D) $\frac{2a-3b}{a-b}$ E) $\frac{3a-2b}{a-b}$

20. $\frac{2a^2+4ab-6b^2}{a^2+5ab+6b^2}$ ni soddalashtiring. 98-12-27

A) $\frac{2(a-b)}{a+2b}$ B) $\frac{a-b}{a+2b}$ C) $\frac{2a-b}{a+2b}$

D) $\frac{a+2b}{2(a-b)}$ E) $\frac{2(a-b)}{a+b}$

21. $\frac{15x^2-8bx+b^2}{12x^2-bx-b^2}$ kasrni qisqartiring. 02-07-03

A) $\frac{5x-b}{4x+b}$ B) $\frac{5x-b}{3x+b}$ C) $\frac{3x-b}{4x+b}$

D) $\frac{4x-b}{3x+b}$ E) -1

22. $\frac{x^3+2x^2+x}{(x+1)^2}$ ni soddalashtiring. 96-03-74

A)$2x$ B)$x+1$ C)$x+2$ D)x E)$x-1$

23. $\frac{1-x^{-1}+x^{-2}}{1-x+x^2}$ ni soddalashtiring. 96-09-15

A)1 B)x^2 C) $\frac{1}{x^2}$ D)$1-\frac{1}{x}$ E)$1+\frac{1}{x}$

24. $\frac{p-q}{p^3\cdot q^2}-\frac{p+q}{p^2\cdot q^3}$ ni soddalashtiring. 99-01-10

A) $-\frac{p^2+q^2}{p^3q^3}$ B) $\frac{2pq-p^2-q^2}{p^3q^3}$ C) $-\frac{2}{p^3q^2}$

D) $-\frac{2}{p^3q-p^2q^2}$ E)0

25. $\frac{x^2-y^2}{2xy}:\frac{x+y}{2x}$ ni soddalashtiring. 99-01-11

A) $\frac{x-y}{y}$ B) $\frac{x-y}{y(1+y)}$ C) $\frac{(x-y)^2}{y(x+y)}$ D) $\frac{1}{y}$ E) $\frac{x}{y}$

26. $\left(x-\frac{1+x^2}{x-1}\right):\frac{x^2+2x+1}{x-1}$ ni soddalashtiring. 96-01-23

A)-1 B) $\frac{1}{x+1}$ C) $\frac{x-2}{(x+1)^2}$ D) $-\frac{1}{x+1}$ E)0

27. $\left(m^2-\frac{1+m^4}{m^2}\right):\frac{m^2+1}{m+1}$ ni soddalashtiring. 96-09-24

A)$m-1$ B) $\frac{1}{m-1}$ C) $-\frac{1}{m+1}$ D)1 E) $\frac{1}{1-m}$

28. $(b^2-\frac{1+b^4}{b^2+1}):\frac{1-b}{1+b^2}$ ni soddalashtiring. 96-10-24

A)1 B)–1 C)$b-1$ D)$\frac{1}{b+1}$ E)$-b-1$

29. $(x^{-1}+y^{-1})\cdot\frac{xy}{(x+y)^2}$ ni soddalashtiring. 96-13-15

A)1 B)$\frac{x^2y^2}{(x+y)^3}$ C)x^2y^2 D)$\frac{1}{x+y}$

E)$\frac{1}{(x+y)^2}$

30. $\frac{a^{-3}+b^{-3}}{a^2-ab+b^2}\cdot a^3b^3$ ni soddalashtiring. 97-04-21

A)$(a+b)^2$ B)1 C)ab D)$a-b$ E)$a+b$

31. $\frac{x^3-8}{x^2+2x+4}-\frac{x^2-4}{x-2}$ ni soddalashtiring. 98-02-08

A)4 B)$2x$ C)$-2x$ D)0 E)–4

32. $\frac{x^{-3}+8}{x^{-2}-2x^{-1}+4}$ ning $x=0,5$ dagi qiymatini hisoblang. 98-02-29

A)4,5 B)3 C)4 D)5 E)6

33. $\frac{a^2+ab+b^2}{a^3-b^3}-\frac{a^2-ab+b^2}{a^3+b^3}$ ni soddalashtiring. 98-09-07

A)$\frac{2b}{b^2-a^2}$ B)$\frac{2a}{a^2-b^2}$ C)$\frac{2b}{a^2-b^2}$

D)$\frac{2a}{b^2-a^2}$ E)$\frac{b}{a^2-b^2}$

34. $\frac{x^3+y^3}{x^2-xy+y^2}-\frac{x^2-y^2}{x+y}$ ni soddalashtiring. 98-10-12

A)$2x$ B)$2y$ C)$-2y$ D)$-2x$ E)$2x-2y$

35. $\frac{x^3-2x^2}{3x+3}:\frac{x^2-4}{3x^2+6x+3}$ ni soddalashtiring. 00-05-26

A)$\frac{x(x+1)}{x+2}$ B)$\frac{x^2(x+1)}{x+2}$ C)$\frac{x^2(x-1)}{x+2}$

D)$\frac{x^2(x-2)}{x+2}$ E)$\frac{x^2(x+1)}{x-2}$

36. $\frac{a^2+\frac{1}{a}}{a+\frac{1}{a}-1}$ ni soddalashtiring. 01-02-14

A)$a-1$ B)a^2-a+1 C)a^2+a+1

D)$a+1$ E)a^2+a-1

37. $\frac{x}{x^2+y^2}-\frac{y(x-y)^2}{x^4-y^4}$ ni soddalashtiring 01-05-06

A)$\frac{1}{x+y}$ B)$\frac{1}{x-y}$ C)$x+y$

D)$x-y$ E)$2xy$

38. $\frac{m^4-16}{m^4-4m^3+8m^2-16m+16}$ kasrni qisqartiring. 02-01-09

A)$(m+2)\cdot(m-2)^{-1}$ B)$(m-2)\cdot(m+2)^{-1}$

C)$(m+2)\cdot(m-3)^{-1}$ D)$(m-3)\cdot(m+2)^{-1}$

E)$(m-2)\cdot(m-3)^{-1}$

39. $\frac{1-b^{-1}+b^{-2}}{1-b+b^2}$ ni soddalashtiring. 02-03-02

A)b^{-1} B)b^{-2} C)b^2 D)$b+1$ E)$b-1$

40. $\left(\frac{5m}{m+3}-\frac{14m}{m^2+6m+9}\right):\frac{5m+1}{m^2-9}+\frac{3\cdot(m-3)}{m+3}$ ni soddalashtiring. 96-07-19

A)$\frac{3}{m+3}$ B)3 C)$m-3$ D)1 E)$\frac{m-3}{m+3}$

41. $\left(\frac{3a}{a-4}+\frac{10a}{a^2-8a+16}\right):\frac{3a-2}{a^2-16}-\frac{4(a+4)}{a-4}$ ni soddalashtiring. 97-03-19

A)$a+4$ B)4 C)$-\frac{4}{a+4}$ D)$\frac{1}{a-4}$

E)$4-a$

42. $\left(\frac{2x}{x-5}+\frac{x}{x^2-10x+25}\right):\frac{2x-9}{x^2-25}-\frac{5(x+5)}{x-5}$ ni soddalashtiring. 97-07-19

A)5 B)$\frac{x+5}{x-5}$ C)$\frac{5}{x+5}$ D)$\frac{1}{x-5}$ E)$5+x$

43. $\left(\frac{3a}{a+6}-\frac{2a}{a^2+12a+36}\right):\frac{3a+16}{a^2-36}+\frac{6(a-6)}{a+6}$ ni soddalashtiring. 97-10-19

A)6 B)$\frac{6}{a+6}$ C)$\frac{6}{a-6}$ D)$a+6$ E)$a-6$

44. $\left(\frac{4a}{4-a^2}-\frac{a-2}{4+2a}\right)\cdot\frac{4}{a+2}-\frac{a}{2-a}$ ni soddalashtiring. 98-01-21

A)–1 B)$\frac{2a}{2-a}$ C)$\frac{3+a}{2-a}$ D)1 E)2

45. $\frac{x}{1-x}-\frac{1-x^2}{1+x^2}\cdot\left(\frac{1}{(x-1)^2}-\frac{x}{1-x^2}\right)$ ni soddalashtiring. 98-08-21

A)1 B)–1 C)$\frac{x+1}{1-x}$ D)$\frac{1}{x-1}$ E)$\frac{2x-1}{1-x}$

46. $\frac{5x+6}{x^2-4}-\frac{x}{x^2-4}:\frac{x}{x-2}-\frac{x+2}{x-2}$ ifodani soddalashtiring. 99-04-26

A)1 B)–1 C)$\frac{x-2}{x+2}$ D)$\frac{x^2+4}{4-x^2}$ E)$\frac{1}{x+2}$

47. $\left(\frac{1}{a(a+1)}+\frac{1}{(a+1)(a+2)}\right)\cdot\frac{a^2+2a}{8}$ ni soddalashtiring. 99-09-19

A)$\frac{1}{6}$ B)$\frac{1}{8}$ C)$\frac{3}{4}$ D)$\frac{1}{4}$ E)$\frac{5}{8}$

48. $\left(\frac{a^2-4}{a^2+4}\right)^2+\left(\frac{4a}{a^2+4}\right)^2$ ni soddlashtiring. 00-03-16

A)$a-4$ B)2 C)$\frac{a^2-4}{a^2+4}$ D)$\frac{a-4}{a+4}$ E)1

49. $\left(\frac{1}{m^2-m}-\frac{1}{m-1}\right)\cdot\frac{m}{m+2}+\frac{m}{m^2-4}$ ni soddalashtiring. 00-06-15

A)$\frac{2m-2}{m^2-4}$ B)$\frac{m}{m-2}$ C)$\frac{2}{m^2-4}$

D)$\frac{1}{m+2}$ E)$\frac{2m+1}{4-m^2}$

50. $(a^3-3a^2b+3ab^2-b^3)(a+b):\left(\frac{a^3+b^3}{a+b}-ab\right)$ ni soddalashtiring. 00-07-13

A)b^2-a^2 B)a^2-b^2 C)$(a-b)^2$

D)$(a+b)^2$ E)a^2+b^2

51. $\frac{x^3+y^3}{x+y}:(x^2-y^2)+\frac{2y}{x+y}-\frac{xy}{x^2-y^2}$ ni soddalashtiring 01-05-04

A)1 B)$\frac{xy}{x^2-y^2}$ C)$\frac{y}{x+y}$ D)$\frac{x^2+y^2}{x^2-y^2}$ E)$\frac{x}{x^2-y^2}$

52. $\left(2a+\frac{2ab}{a-b}\right)\left(\frac{ab}{a+b}-a\right):\frac{4,5a^2}{a^2-b^2}$ ni soddalashtiring. 01-06-10

A)$\frac{4a^2}{9}$ B)$-\frac{2a^2}{9}$ C)$\frac{2a^2}{9}$ D)$-\frac{4a^2}{9}$ E)$-\frac{a^2}{9}$

53. $\frac{a^2}{a^2-1}+\frac{1}{a+1}\cdot\left(\frac{1}{2-a}+\frac{2}{a^2-2a}\right)$ ni soddalashtiring. 01-08-18

A)$\frac{a}{a^2-1}$ B)$\frac{1}{a-1}$ C)$\frac{2a^2-a}{a^2-1}$ D)1 E)$\frac{a}{a+1}$

54. $a^2b^2\left(\frac{1}{(a+b)^2}\cdot\left(\frac{1}{a^2}+\frac{1}{b^2}\right)+\frac{2}{(a+b)^3}\cdot\left(\frac{1}{a}+\frac{1}{b}\right)\right)$ ni soddalashtiring. 02-03-15

A)1 B)$\frac{1}{a+b}$ C)2 D)$\frac{2}{a+b}$ E)$\frac{1}{(a+b)^2}$

55. $\left(\frac{2}{1-x^2}-\frac{2}{(x-1)^2}\right)\cdot(1-x)^2-\frac{4}{1+x}$ ni soddalashtiring. 02-09-14

A)4 B)–4 C)0 D)$\frac{1-x}{1+x}$ E)$-\frac{2}{1+x}$

56. $\frac{abc}{bc+ac-ab}-\left(\frac{a-1}{a}+\frac{b-1}{b}-\frac{c-1}{c}\right):\left(\frac{1}{a}+\frac{1}{b}-\frac{1}{c}\right)$ ni soddalashtiring. 02-10-41

A)1 B)0 C)$\frac{1}{a}$ D)$\frac{2}{b}$ E)$\frac{1}{c}$

57. $\left(\frac{a+x}{a}-\frac{x-y}{x}\right)\cdot\frac{a^2}{x^2+ay}:\frac{a}{8x}$ ni soddalashtiring. 03-04-10

A)10 B)6 C)7 D)8 E)9

58. $\frac{x^3y+2x^2y-3xy}{x^3+5x^2+6x}:\frac{1-x^2}{x^2+3x+2}$ ni soddalashtiring. 03-06-07

A)$\frac{y}{x}$ B)$-x$ C)$-y$ D)x E)y

59. $\frac{x^3y+2x^2y-3xy}{x^3+5x^2+6x}:\frac{x^2-1}{x^2+3x+2}$ ni soddalashtiring. 03-07-10

A)$\frac{y}{x}$ B)$-x$ C)$-y$ D)x E)y

60. $\frac{5a}{3(4-a)}+\frac{a+4}{8-3a}:\left(\frac{a-1}{a+4}-\frac{a-3}{a-4}\right)$ ifodaning $a=-0,2$ bo'lgandagi qiymatini hisoblang. 03-11-71

A)$-\frac{7}{9}$ B)0 C)$-\frac{5}{9}$ D)$\frac{2}{3}$ E)$-\frac{1}{18}$

61. $\frac{x^4+1}{x^2+x\sqrt{2}+1}$ ni qisqartiring. 08-07-27

A)x^2+1 B)$x^2-x\sqrt{2}-1$ C)$x^2-2\sqrt{2}x+1$

D)x^2-1 E)$x^2-x\sqrt{2}+1$

62. $\frac{x^2-x+1}{x^4+x^2+1}$ ni qisqartiring. 08-12-26

A)$\frac{1}{x^2+x-1}$ B)$\frac{1}{x^2-2x-1}$ C)$\frac{1}{x^2-x+1}$

D)$\frac{1}{x^2-x-1}$ E)$\frac{1}{x^2-2x+1}$

63. $\frac{x^3-1}{x^4+x^2+1}$ kasrni qisqartiring. 00-10-48

A) $\frac{x-1}{x^2-x+1}$ B) $\frac{x}{x+2}$ C) $\frac{x+1}{x^2-x+1}$

D) $\frac{x-2}{x^2-x-1}$ E) $\frac{x+2}{x^2-x-1}$

64. a va b ning qanday qiymatida $\frac{1}{x^2-5x-6}=\frac{a}{x-6}+\frac{b}{x+1}$ tenglik ayniyat bo'ladi? 98-01-19

A) $a=7, b=-1$ B) $a=\frac{1}{7}, b=-\frac{1}{7}$ C) $a=1, b=1$

D) $a=-\frac{1}{7}, b=\frac{1}{7}$ E) $a=-1, b=7$

65. a va b ning qanday qiymatida $\frac{2}{x^2+x-6}=\frac{a}{x-2}+\frac{b}{x+3}$ tenglik ayniyat bo'ladi? 98-08-19

A) $a=1, b=1$ B) $a=\frac{2}{5}, b=-\frac{2}{5}$ C) $a=5, b=5$ D) $a=-\frac{2}{5}, b=\frac{2}{5}$ E) $a=-\frac{1}{5}, b=\frac{3}{5}$

66. a, b va c ning qanday qiymatida $\frac{1}{(x+1)^2(x+2)}=\frac{a}{x+1}+\frac{b}{(x+1)^2}+\frac{c}{x+2}$ tenglik ayniyat bo'ladi? 02-10-06

A) $-1; 1; 1$ B) $0; 1; 2$ C) $1; -1; \frac{1}{2}$ D) $2; -2; \frac{1}{2}$

E) $1; \frac{1}{2}; -1$

67. a ning nechta butun qiymatida $\frac{a^4-9}{a^3-3a}:\frac{a^3+3a}{a-5a^2}$ ifodaning qiymati butun son bo'ladi? 03-10-10

A) 2 B) 3 C) 1 D) 4 E) 5

68. $\frac{x^{16}-x^8+1}{x^{24}+1}$ kasrni qisqartiring 00-10-06

A) $[(x^2)^4+1]^{-1}$ B) $[(x^2)^3+1]^{-1}$ C) $[(x^2)^{-4}+1]^{-1}$

D) $[(x^2)^{-3}+1]^{-1}$ E) $[(x^3)^{-2}+1]^{-1}$

69. a va b ning qanday qiymatlarida $\frac{1}{4x^2-1}=\frac{a}{2x-1}-\frac{b}{2x+1}$ munosabat ayniyat bo'ladi? 00-03-14

A) $a=-\frac{1}{2}, b=\frac{1}{2}$ B) $a=1, b=-1$ C) $a=-1, b=1$

D) $a=\frac{1}{2}, b=-\frac{1}{2}$ E) $a=\frac{1}{2}, b=\frac{1}{2}$

70. $\frac{y^{2\pi}-x^{2\pi}}{x^{\pi}+y^{\pi}}$ ni qisqartiring 2006

A) $-x^{\pi}+y^{\pi}$ B) $x^{\pi}+y^{\pi}$ C) $x^{\pi}-y^{\pi}$ D) $x-y$

71. $\frac{1-x^{-1}+x^{-2}}{1-x+x^2}-x^{-2}$ ni soddalashtiring. 2006

A) x^2 B) 0 C) $1-\frac{1}{x}$ D) $\frac{2}{x^2}$

1-§. Irratsional sonlar.

1. $m=\sqrt[4]{256}$, $n=3,141516...$, $p=\sqrt{\sqrt{81}+13}$, $q=\frac{1}{\sqrt{2}}$ sonlardan qaysilari irratsional sonlar? 98-07-08
A)p, q B)m, p C)m, n D)n, q E)hammasi

2. $m=\sqrt[4]{2,56}$, $n=3,4(25)$, $p=3,142...$ va $q=\sqrt{\sqrt{16}+2}$ sonlaridan qaysilari irratsional sonlar hisoblanadi? 98-12-07
A)m, p B)p, q C)m, q D)p E)hammasi

3. Qaysi ifodaning qiymati ratsional sondan iborat? 99-03-04
1)$(1-\sqrt{2})(1+\sqrt{2})$; 2) $1+2\sqrt{7}$
3)$\frac{0,5}{1-\sqrt{0,5}}-\sqrt{0,5}$; 4)$(1+\sqrt{5})^2-(1-\sqrt{5})^2$.
A)1; 2 B)1; 3 C)1; 4 D)1 E)3; 4

4. α va β irratsional sonlar $(\alpha\neq\beta)$, $\alpha+\beta$ - esa ratsional son. Quyidagilardan qaysi biri ratsional son? 99-02-09
A)$\alpha-2\beta$ B)$\alpha^2+2\alpha\beta+\beta^2$ C)$\frac{\alpha+2\beta}{2}$
D)$2\alpha+\beta$ E)$\alpha-3\beta$

5. Agar $m-n$ ratsional son, mn, m va n lar esa irratsional sonlar bo'lsa, quyidagilardan qaysi biri ratsional son bo'ladi? 03-04-07
A)$m-2n$ B)m^2n-mn^2 C)$m^3-n^3-3mn(m-n)$
D)$2m-n$ E)$3m-5n$

2-§. Kvadrat ildiz.

1. O'zaro teskari sonlarni aniqlang. 98-07-17
1)$\frac{\sqrt{7}}{2}$ va $\frac{2\sqrt{7}}{7}$ 2)$\sqrt{6}-\sqrt{5}$ va $\sqrt{6}+\sqrt{5}$
3)$\frac{2\sqrt{5}}{9}$ va $\frac{9\sqrt{5}}{10}$ 4)$\sqrt{3}-1$ va $\sqrt{3}+1$
A)hammasi B)2; 3; 4 C)1; 3; 4
D)1; 2; 4 E)1; 2; 3

2. O'zaro teskari sonlarni aniqlang: 98-12-16
1) $\frac{\sqrt{5}}{3}$ va $\frac{3\sqrt{5}}{5}$; 2)$3-\sqrt{2}$ va $3+\sqrt{2}$;
3) $\frac{2\sqrt{3}}{5}$ va $\frac{5\sqrt{3}}{6}$ 4)$\sqrt{2}+1$ va $\sqrt{2}-1$
A)1; 3; 4 B)1; 2; 3 C)2; 3; 4 D)1; 3 E)2; 4

3. Agar $a>0$, $b>0$ va $c<0$ bo'lsa, to'g'ri tenglikni ko'rsating. 98-05-05
A)$\sqrt{a^2b^2c^2}=a|b|c$ B)$\sqrt{a^2b^2c^2}=abc$
C)$\sqrt{a^2b^2c^2}=-ab|c|$ D)$\sqrt{a^2b^2c^2}=|a|bc$
E)$\sqrt{a^2b^2c^2}=-abc$

4. Agar $a:b=-\sqrt{5}$ bo'lsa, a^2-5b^2 ni hisoblang. 99-07-07
A)0 B)$\sqrt{5}$ C)5 D)-5 E)$-\sqrt{5}$

5. 1 dan 50 gacha bo'lgan toq sonlar yig'indisini kvadrat ildizini hisoblang. 99-12-07
A)45 B)35 C)25 D)40 E)50

6. $\sqrt{45\cdot10\cdot18}$ va $\sqrt{21\cdot56\cdot6}$ sonlarining eng katta umumiy bo'luvchisini toping. 01-07-06
A)9 B)10 C)18 D)12 E)6

7. $\frac{\sqrt{16x^2+9-24x}}{16x^2-9}$ ni soddalashtiring. 01-09-48
A)$\frac{1}{4x+3}$ B)$\begin{cases}\frac{1}{4x+3}, & \text{agar } x<\frac{3}{4}\\ -\frac{1}{4x+3}, & \text{agar } x\geq\frac{3}{4}\end{cases}$
C)$\begin{cases}-\frac{1}{4x+3}, & \text{agar } x<\frac{3}{4}\\ \frac{1}{4x+3}, & \text{agar } x>\frac{3}{4}\end{cases}$ D)$-\frac{1}{4x+3}$
E)soddalashmaydi

8. $x=5\sqrt{6}$ va $y=6\sqrt{5}$ bo'lsa, $\sqrt{x^2+2xy+y^2}-\sqrt{x^2-2xy+y^2}$ ning qiymatini hisoblang. 02-06-08
A)$\sqrt{720}$ B)$\sqrt{700}$ C)$\sqrt{640}$ D)$\sqrt{600}$ E)$\sqrt{560}$

9. $\sqrt{\left(\frac{\pi}{2}-\sqrt{3}\right)^2}+\sqrt{\left(\frac{\pi}{3}-\sqrt{2}\right)^2}-\sqrt{5+2\sqrt{6}}$ ni soddalashtiring. 03-01-01
A)$\frac{5\pi}{6}-2(\sqrt{2}+\sqrt{3})$ B)$\sqrt{3}+\sqrt{2}$ C)$\frac{5\pi}{6}$
D)$-2\sqrt{3}-2\sqrt{2}$ E)$-\frac{5\pi}{6}$

10. $3\sqrt{\frac{1}{5}}+\frac{1}{2}\sqrt{20}+\sqrt{\frac{4}{5}}$ ni soddalashtiring. 02-02-06
A)$2\sqrt{5}$ B)$\sqrt{5}$ C)$3\sqrt{5}$ D)$\frac{6}{\sqrt{5}}$ E)$\frac{7}{\sqrt{5}}$

11. $3\sqrt{3\frac{2}{3}}-\sqrt{132}+4\sqrt{2\frac{1}{16}}$ ni soddalashtiring. 02-09-10
A)0 B)$2\sqrt{33}$ C)$3\sqrt{3}$ D)$4\sqrt{11}$ E)2

12. $4\sqrt{3\frac{1}{2}}-0,5\sqrt{56}-3\sqrt{1\frac{5}{9}}$ ni soddalashtiring. 97-01-08
A)$2\sqrt{14}$ B)$2\sqrt{7}$ C)0 D)2 E)$\sqrt{7}$

13. $15\sqrt{\frac{3}{5}}-0,5\sqrt{60}+2\sqrt{3\frac{3}{4}}$ ni soddalashtiring. 97-05-08
A)0 B)$\sqrt{15}$ C)$5\sqrt{3}$ D)$3\sqrt{15}$ E)$4\sqrt{5}$

14. $2\sqrt{5\frac{1}{2}}+\frac{1}{3}\sqrt{99}-2\sqrt{2\frac{3}{4}}$ ni soddalashtiring. 97-11-08
A)$3\sqrt{11}$ B)$2\sqrt{22}$ C)$\sqrt{22}$ D)2 E)0

15. $\sqrt{\frac{65^3+35^3}{100}-35\cdot 65}$ ni hisoblang. 96-07-14

A)100 B)30 C)10 D)45 E)65

16. $\sqrt{\frac{68^3-32^3}{36}+68\cdot 32}$ ifodaning qiymatini toping. 97-03-14

A)$16\frac{2}{3}$ B)85 C)100 D)$25\frac{5}{6}$ E)120

17. $\sqrt{\frac{82^3-18^3}{64}+82\cdot 18}$ ifodaning qiymatini toping. 97-10-14

A)64 B)100 C)12,5 D)50 E)82

18. $\frac{\sqrt{32}+\sqrt{98}-\sqrt{50}}{\sqrt{72}}$ ni hisoblang. 98-06-09

A)2 B)1 C)$\sqrt{2}$ D)$2\sqrt{2}$ E)0,9988207

19. $\sqrt{192}-\sqrt{108}+\frac{\sqrt{243}}{3}$ ni hisoblang. 99-06-36

A)$5\sqrt{3}$ B)$5\sqrt{2}$ C)$3\sqrt{5}$ D)$3\sqrt{3}$ E)$8\sqrt{3}$

20. $\sqrt{0,9}+\sqrt{14,4}-\sqrt{8,1}$ ni soddalashtiring. 00-07-45

A)$\sqrt{3,6}$ B)$\sqrt{0,36}$ C)3,6 D)$3\sqrt{10}$ E)$6\sqrt{10}$

21. $\frac{\sqrt{196}\cdot\sqrt{19,6}}{\sqrt{0,196}\cdot\sqrt{1,96}}$ ni hisoblang. 03-05-02

A)1000 B)100 C)196 D)10 E)19,6

22. $\frac{8+2\sqrt{2}}{4+\sqrt{128}}$ kasr qisqartirilgandan keyin, quyidagilardan qaysi biriga teng bo'ladi? 03-05-04

A)$\frac{\sqrt{2}}{2}$ B)$\frac{\sqrt{2}}{4}$ C)$\frac{2}{\sqrt{2}}$ D)$\sqrt{2}+1$ E)$\frac{\sqrt{2}+1}{2}$

23. $\sqrt{9+\sqrt{65}}\cdot\sqrt{9-\sqrt{65}}$ 14 dan qancha kam? 99-02-13

A)8 B)9 C)10 D)11 E)12

24. $\sqrt{9+\sqrt{77}}\cdot\sqrt{9-\sqrt{77}}$ ni hisoblang. 99-07-04

A)3 B)12 C)2 D)4 E)1

25. $\sqrt{7+2\sqrt{10}}\cdot\sqrt{7-2\sqrt{10}}$ ni hisoblang. 00-01-48

A)2 B)3,2 C)3 D)2,5 E)1,5

26. $\sqrt{2+\sqrt{3}}\cdot\sqrt{2+\sqrt{2+\sqrt{3}}}\cdot\sqrt{2+\sqrt{2+\sqrt{2+\sqrt{3}}}}\cdot$ $\cdot\sqrt{2-\sqrt{2+\sqrt{2+\sqrt{3}}}}$ ni soddalashtiring. 00-08-27

A)1 B)$\sqrt{2}$ C)$\sqrt{3}$ D)$\sqrt{1+\sqrt{2}}$ E)$\sqrt{2+\sqrt{2}}$

27. Agar $a-\frac{1}{a}=\sqrt{7}$ bo'lsa, $a^4+\frac{1}{a^4}$ ning qiymatini toping. 02-05-07

A)81 B)79 C)49 D)63 E)77

28. Agar $a=\sqrt{7}+\sqrt{6}$, $b=\sqrt{7}-\sqrt{6}$ bo'lsa, $2a^2-5ab+2b^2$ ni hisoblang. 02-06-05

A)47 B)2 C)55 D)49 E)3

29. Ikki sonning yig'indi $\sqrt{14}$ ga, ayirmasi esa $\sqrt{10}$ ga teng. Shu sonlarning ko'paytmasini toping. 02-06-06

A)1 B)$\sqrt{140}$ C)$\sqrt{24}$ D)2 E)24

30. $(\sqrt{18}+\sqrt{72}-\sqrt{12})(\sqrt{18}+\sqrt{72}+\sqrt{12})$ ning qiymatini hisoblang. 01-11-08

A)148 B)149 C)147 D)150 E)151

31. $\frac{c-2\sqrt{c}+1}{\sqrt{c}-1}$ kasrni qisqartiring. 03-08-41

A)$\sqrt{c}-1$ B)$c-1$ C)$c+1$ D)$\sqrt{c}+1$ E)1

32. $(\sqrt{7}+\sqrt{2}-1)(\sqrt{7}+1-\sqrt{2})$ ni soddalashtiring. 99-04-20

A)$4+2\sqrt{2}$ B)$2-\sqrt{2}$ C)$4-\sqrt{2}$

D)$6+2\sqrt{2}$ E)$3\sqrt{2}+2\sqrt{7}$

33. $(\sqrt{3-\sqrt{5}}+\sqrt{3+\sqrt{5}})^2\cdot 0,5^{-2}$ ni hisoblang. 99-07-14

A)38 B)30 C)40 D)44 E)50

34. Agar $a=19-\sqrt{192}$ bo'lsa, $\sqrt{a}+\sqrt{3}$ ifodaning qiymatini aniqlang. 02-07-45

A)4 B)6 C)5 D)$2+\sqrt{3}$ E)$4\sqrt{3}$

35. $\sqrt{7-4\sqrt{3}}$ ni soddalashtiring. 97-05-21

A)$2+\sqrt{3}$ B)$\sqrt{3}-2$ C)$3+\sqrt{3}$

D)$2-\sqrt{3}$ E)$3-\sqrt{3}$

36. $\sqrt{9+4\sqrt{2}}$ ni soddalashtiring. 97-09-21

A)$2\sqrt{2}+1$ B)$2\sqrt{2}-1$ C)$3+\sqrt{2}$

D)$3-\sqrt{2}$ E)$3+2\sqrt{2}$

37. $\sqrt{19-8\sqrt{3}}$ ni hisoblang. 98-05-10

A)$4-\sqrt{3}$ B)$4+\sqrt{3}$ C)$3+\sqrt{3}$ D)$3\sqrt{3}$ E)$4-\sqrt{6}$

38. $\sqrt{11-6\sqrt{2}}$ ni soddalashtiring. 99-07-12

A)2 B)$3-\sqrt{2}$ C)$3-\sqrt{3}$ D)3 E)$\sqrt{6}$

39. $\sqrt{6-2\sqrt{5}}$ ni soddalashtiring. 96-08-28

A)$\sqrt{5}-1$ B)$1-\sqrt{5}$ C)$2-\sqrt{3}$ D)$1+\sqrt{5}$ E)$2-\sqrt{5}$

40. $\sqrt{11-4\sqrt{7}}$ ni soddalashtiring. 03-07-39

A)$\sqrt{7}+2$ B)$\sqrt{7}-2$ C)$\sqrt{7}-1$ D)$2-\sqrt{7}$ E)$\sqrt{7}$

41. $\sqrt{6+4\sqrt{2}}+\sqrt{6-4\sqrt{2}}$ ni soddalashtiring. 01-01-16

A)3,8 B)3,6 C)4 D)4,2 E)4,5

42. $\sqrt{\sqrt{28-16\sqrt{3}}}$ ni hisoblang. 97-01-25

A)$3-\sqrt{3}$ B)$4\sqrt{3}-1$ C)$2-\sqrt{3}$

D)$\sqrt{3}-1$ E)$2\sqrt{3}-1$

43. $\sqrt{\sqrt{17-12\sqrt{2}}}$ ni hisoblang. 97-06-25

A)$3-2\sqrt{2}$ B)$2-\sqrt{2}$ C)$2\sqrt{2}-1$ D)$\sqrt{2}-1$

E)$3-\sqrt{2}$

44. $\sqrt{15-4\sqrt{7+4\sqrt{3}}}$ ni hisoblang. 97-11-25

A)$\sqrt{3}-1$ B)$4-\sqrt{3}$ C)$3\sqrt{3}$ D)$3-2\sqrt{3}$ E)$2-\sqrt{3}$

45. $\sqrt{13+30\sqrt{2+\sqrt{9+4\sqrt{2}}}}$ ni soddalashtiring. 98-07-25

A) $3+\sqrt{3}$ B) $5+\sqrt{2}$ C) $5+2\sqrt{3}$
D) $5+3\sqrt{2}$ E) $3+\sqrt{2}$

46. $\sqrt{19-8\sqrt{3}}+\sqrt{3}$ ni hisoblang.

A) -4 B) 4 C) $4+2\sqrt{3}$ D) $2\sqrt{3}-4$ E) $2\sqrt{3}-2$

47. $\sqrt{21-2\sqrt{21+2\sqrt{19-6\sqrt{2}}}}$ ni soddalashtiring. 00-10-04

A) $3\sqrt{2}+1$ B) $3\sqrt{2}+2$ C) $3\sqrt{2}-2$
D) $2\sqrt{3}+2$ E) $3\sqrt{2}-1$

48. $\sqrt{\sqrt{5}-\sqrt{3-\sqrt{29-6\sqrt{20}}}}$ ning qiymatini toping. 02-10-04

A) 1 B) $\frac{4}{5}$ C) $\sqrt{5}-\sqrt{3}$ D) 2 E) $\sqrt{5}$

49. $\sqrt{23-8\sqrt{7}}+\sqrt{23+8\sqrt{7}}$ ni hisoblang.

A) 7 B) 6 C) 8 D) 9 E) 5

50. $\sqrt{9+2\sqrt{20}}-\sqrt{9-2\sqrt{20}}$ ayirmaning qiymatini toping. 96-12-71

A) 4 B) 5 C) 6 D) 3 E) -4

51. $\sqrt{7+4\sqrt{3}}+\sqrt{7-4\sqrt{3}}$ yig'indining qiymatini toping. 96-13-13

A) 3 B) 5 C) 4 D) 6 E) 7

52. $\sqrt{19+8\sqrt{3}}+\sqrt{19-8\sqrt{3}}$ ni hisoblang. 97-02-28

A) 6 B) 7 C) 9 D) 8 E) 5

53. $\sqrt{11+6\sqrt{2}}+\sqrt{11-6\sqrt{2}}$ ni hisoblang. 99-01-09

A) 6 B) 22 C) $\sqrt{22}$ D) 6,012 E) 5,92

54. $\frac{\sqrt{3+2\sqrt{2}}+\sqrt{3-2\sqrt{2}}}{4\sqrt{2}}$ ni hisoblang. 99-10-14

A) $\frac{\sqrt{2}}{4}$ B) 0,5 C) $\frac{\sqrt{2}}{2}$ D) 0,75 E) 0,8

55. $\sqrt{5-2\sqrt{6}}-\sqrt{5+2\sqrt{6}}$ ni hisoblang.

A) $2\sqrt{2}$ B) $-4\sqrt{6}$ C) $\sqrt{2}$ D) $-\sqrt{2}$ E) $-2\sqrt{2}$

56. $\sqrt{52-30\sqrt{3}}-\sqrt{52+30\sqrt{3}}$ ning qiymatini toping.

A) -10 B) 10 C) -8 D) 8 E) -6

57. $\sqrt{17-12\sqrt{2}}\cdot(6+4\sqrt{2})$ ning qiymatini hisoblang. 03-11-74

A) $\sqrt{2}$ B) $-\sqrt{2}$ C) $\sqrt{3+\sqrt{8}}$ D) 2 E) $\sqrt{3-\sqrt{8}}$

58. $\sqrt{9-4\sqrt{2}}-\sqrt{9+4\sqrt{2}}$ ni hisoblang.

A) 2 B) 3 C) -3 D) -4 E) -2

59. $\sqrt{4-\sqrt{7}}-\sqrt{4+\sqrt{7}}$ ni hisoblang.

A) 0 B) -4 C) $-2\sqrt{2}$ D) $-\sqrt{2}$ E) $-\sqrt{10}$

60. $\sqrt{3-\sqrt{5}}+\sqrt{3+\sqrt{5}}$ ni hisoblang. 97-06-53

A) $2\sqrt{3}$ B) $\sqrt{10}$ C) 2 D) $\sqrt{2}$
E) to'g'ri javob keltirilmagan

61. $\sqrt{\frac{9+\sqrt{65}}{2}}+\sqrt{\frac{9-\sqrt{65}}{2}}$ ni hisoblang. 01-02-22

A) $\sqrt{13}$ B) $9-\sqrt{10}$ C) $4\sqrt{2}$ D) $7-\sqrt{2}$ E) $6\frac{3}{7}$

62. $\sqrt{2+\sqrt{3}}-\sqrt{2-\sqrt{3}}$ ni soddalashtiring.

A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $2\sqrt{2}$ D) $\sqrt{2}$ E) $\sqrt{6}$

63. $\sqrt{3-\sqrt{5}}\cdot(3+\sqrt{5})(\sqrt{10}-\sqrt{2})$ ni hisoblang.

A) 8 B) 4 C) 10 D) 1 E) 2

64. $\frac{1}{3-\sqrt{8}}-2\sqrt{2}+6$ ni soddalashtiring. 96-06-50

A) 8 B) 7 C) 9 D) 10
E) to'g'ri javob keltirilmagan

65. $2\sqrt{3}-5-\frac{11}{\sqrt{12}-1}$ ni soddalashtiring. 97-03-50

A) $2\sqrt{3}-4$ B) 4 C) -4 D) -6 E) 6

66. $\frac{19}{\sqrt{20}-1}-2\sqrt{5}+3$ ni soddalashtiring. 97-08-50

A) $4\sqrt{5}+4$ B) $4\sqrt{5}-4$ C) $2\sqrt{5}+4$ D) 4 E) $2\sqrt{5}-4$

67. $\frac{19}{\sqrt{20}+1}+6-2\sqrt{5}$ ni soddalashtiring. 97-12-49

A) 6 B) 5 C) $4\sqrt{5}-7$ D) $4\sqrt{5}-6$ E) $4\sqrt{5}-5$

68. $\frac{3-\sqrt{5}}{3+\sqrt{5}}+\frac{3+\sqrt{5}}{3-\sqrt{5}}$ ning qiymatini toping. 96-07-24

A) 2 B) $\frac{3\sqrt{5}}{2}$ C) 4,5 D) $\frac{3\sqrt{5}+2}{2}$ E) 7

69. $\frac{4+\sqrt{6}}{4-\sqrt{6}}+\frac{4-\sqrt{6}}{4+\sqrt{6}}$ ning qiymatini toping. 97-03-24

A) 2 B) $\frac{3\sqrt{6}}{8}$ C) $4\frac{2}{5}$ D) $\frac{\sqrt{6}+8}{4}$ E) 3,2

70. $\frac{3+\sqrt{7}}{3-\sqrt{7}}-\frac{3-\sqrt{7}}{3+\sqrt{7}}$ ning qiymatini toping. 97-07-24

A) $4+\sqrt{7}$ B) $-3\sqrt{7}$ C) $6\sqrt{7}$ D) 3 E) 6

71. $\frac{1}{2+\sqrt{3}}+\frac{2}{\sqrt{3}-1}$ ni hisoblang. 98-02-20

A) 2 B) 3 C) 4 D) $\sqrt{3}$ E) $2\sqrt{3}$

72. $\frac{1}{2+\sqrt{3}}+\frac{2}{\sqrt{5}-\sqrt{3}}-\frac{1}{2+\sqrt{5}}$ ning qiymatini toping. 99-06-39

A) 4 B) 0 C) $\sqrt{5}-\sqrt{3}$ D) $\sqrt{5}+\sqrt{3}$ E) 2

73. Amallarni bajaring. $\frac{9}{5-\sqrt{7}}+\frac{22}{7+\sqrt{5}}-\frac{1}{\sqrt{7}+\sqrt{5}}$ 00-10-47

A) 1 B) 6 C) $\frac{1}{5}$ D) 5 E) -1

74. $\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{3}{\sqrt{6}-\sqrt{3}}-\frac{4}{\sqrt{7}+\sqrt{3}}$ ni hisoblang. 02-06-26

A) 0 B) 1 C) 2 D) 3 E) 4

75. $\frac{\sqrt{5}}{\sqrt{5}-2}-\frac{10}{\sqrt{5}}$ ni soddalashtiring. 99-06-38

A)1 B)4 C)3 D)2 E)5

76. $4+5\sqrt{2}+\frac{\sqrt{75}}{\sqrt{3}-\sqrt{6}}$ ni soddalashtiring. 01-07-04

A) $2\sqrt{2}+1$ B)3 C)2 D)-2 E)-1

77. $\frac{\sqrt{2}+1}{3+2\sqrt{2}}-\frac{\sqrt{2}-1}{3-2\sqrt{2}}$ ni soddalashtiring. 03-10-17

A)1 B)-1 C)2 D)-2 E)$\sqrt{2}$

78. Agar $a=(2+\sqrt{3})^{-1}$ va $b=(2-\sqrt{3})^{-1}$ bo'lsa, 01-07-14

$(a+1)^{-1}+(b+1)^{-1}$ ning qiymatini hisoblang.

A)2 B)0,5 C)$2\sqrt{3}$ D)$\sqrt{3}$ E)1

79. 20% i $(\sqrt{3}-\sqrt{2})\cdot(\sqrt{3}+\sqrt{2})+2\sqrt{6}$ ga teng bo'lgan sonni toping. 02-11-08

A)35 B)15 C)30 D)20 E)25

80. $\left(\frac{1}{\sqrt{3}+\sqrt{2}}+\frac{1}{2+\sqrt{3}}\right)\cdot(2+\sqrt{2})$ ni soddalashtiring. 99-10-15

A) $2\sqrt{2}$ B) $2\sqrt{3}$ C)2 D) $3\sqrt{2}$ E)4

81. $4\sqrt{7\frac{1}{2}-\frac{2\sqrt{10}}{2\sqrt{3}-\sqrt{10}}}$ ni soddalashtiring. 00-03-04

A) $2-3\sqrt{10}$ B)10 C) $3\sqrt{10}-2$ D)-10 E) $4\sqrt{10}$

82. $\frac{3\sqrt{5}-2\sqrt{2}}{2\sqrt{5}-3\sqrt{2}}$ kasrning maxrajini irratsionallikdan qutqaring. 01-01-06

A) $\frac{1}{2}(\sqrt{5}+3\sqrt{2})$ B) $\frac{1}{2}(3\sqrt{5}-2\sqrt{2})$

C) $9+2,5\sqrt{10}$ D) $2,5\sqrt{10}-9$ E) $\sqrt{2}-1,5\sqrt{5}$

83. $\left(\frac{\sqrt{2+\sqrt{3}}}{\sqrt{2-\sqrt{3}}}+\frac{\sqrt{2-\sqrt{3}}}{\sqrt{2+\sqrt{3}}}\right)^2$ ni hisoblang. 01-06-23

A)12 B)14 C)18 D)16 E)15

84. Ifodani soddalashtiring: 03-08-24

$\left(\frac{15}{\sqrt{6}+1}+\frac{4}{\sqrt{6}-2}-\frac{12}{3-\sqrt{6}}\right)\cdot(\sqrt{6}+11)$.

A)-115 B)127 C)160 D)-116 E) $21\sqrt{6}$

85. $\frac{1}{1+\sqrt{2}-\sqrt{3}}$ kasrning maxrajini irrasionallikdan qutqaring. 00-05-25

A) $\frac{2+\sqrt{2}+\sqrt{6}}{2}$ B) $\frac{2-\sqrt{2}+\sqrt{6}}{4}$ C) $\frac{2+\sqrt{2}-\sqrt{6}}{2}$

D) $\frac{2-\sqrt{2}-\sqrt{6}}{2}$ E) $\frac{2+\sqrt{2}+\sqrt{6}}{4}$

86. $\frac{1}{\sqrt{1}+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\ldots+\frac{1}{\sqrt{1599}+\sqrt{1600}}$ 98-04-03

ifodaning qiymatini hisoblang.

A)52 B)41 C)39 D)34 E)26

87. $\frac{1}{\sqrt{2}+1}+\frac{1}{\sqrt{3}+\sqrt{2}}+\frac{1}{\sqrt{4}+\sqrt{3}}+\ldots+\frac{1}{\sqrt{9}+\sqrt{8}}$ ni hisoblang. 99-09-22

A)2 B)3 C)4 D)1 E)5

88. $\frac{1}{\sqrt{1}+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{7}}+\ldots+\frac{1}{\sqrt{79}+\sqrt{81}}$ yig'indini hisoblang. 00-02-23

A)6 B)5 C)3 D)2 E)4

89. $\sqrt{a}-\sqrt{b}=4$ va $a-b=24$ bo'lsa, $\sqrt{a}+\sqrt{b}$ nimaga teng? 99-06-41

A)6 B)4 C)5 D)3 E)8

90. $\left(\frac{1}{\sqrt{a+1}+\sqrt{a}}+\frac{1}{\sqrt{a}-\sqrt{a-1}}\right)\cdot(\sqrt{a+1}-\sqrt{a-1})$ ni soddalashtiring. 00-01-20

A)1 B)2 C) $2\sqrt{a}$ D) $2\sqrt{a-1}$ E) $2\sqrt{a+1}$

91. $\left(\frac{1}{\sqrt{a}+\sqrt{a+1}}+\frac{1}{\sqrt{a}-\sqrt{a-1}}\right)\left(1+\sqrt{\frac{a+1}{a-1}}\right)$ ni soddalashtiring. 01-07-13

A) $\sqrt{a+1}$ B) $\sqrt{a-1}$ C) $\sqrt{\frac{a-1}{a+1}}$ D) $\sqrt{a}$

E) $\sqrt{a+1}-\sqrt{a-1}$

92. Agar $\sqrt{8-a}+\sqrt{5+a}=5$ bo'lsa, 00-08-25

$\sqrt{(8-a)(5+a)}$ ning qiymatini toping.

A)6 B)20 C)12 D)10 E)7

93. Agar $\sqrt{t^5+3}-\sqrt{t^5-2}=1$ bo'lsa, 99-05-11

$\sqrt{t^5+3}+\sqrt{t^5-2}$ ning qiymati nechaga teng bo'ladi?

A)2 B)3 C)4 D)5 E)8

94. Agar $\sqrt{25-x^2}+\sqrt{15-x^2}=5$ bo'lsa, 00-08-26

$\sqrt{25-x^2}-\sqrt{15-x^2}$ ifodaning qiymatini toping.

A)2 B)3 C)5 D)6 E)10

95. Agar $\sqrt{13+z^3}+\sqrt{z^3-14}=3$ bo'lsa, 00-09-20

$\sqrt{13+z^3}-\sqrt{z^3-14}$ ning qiymati nechaga teng bo'ladi?

A)5 B)6 C)7 D)8 E)9

96. $\frac{3}{a-\sqrt{a^2-3}}+\frac{3}{a+\sqrt{a^2-3}}$ ni soddalashtiring. 01-11-07

A)1,5a B)3a C)2a D)2,5a E)2,4a

97. $\frac{3}{a-\sqrt{a^2-3}}+\frac{3}{a+\sqrt{a^2-3}}$ ni soddalashtiring. 02-12-25

A)1,5a B)3a C)2,5a D)2a E)2,4a

98. Agar $x=\frac{\sqrt{7}-5}{2}$ bo'lsa, $(x+1)(x+2)(x+3)(x+4)$ 02-03-02

ning qiymatini hisoblang.

A)0,75 B)$-0,75$ C)3 D)-3 E)$-1,5$

99. Agar $x=\frac{\sqrt{3}-1}{2}$ bo'lsa, $(x-1)(x+2)$ ifodaning qiymatini toping. 03-09-08

A)–1,5 B)1,5 C)3 D)–3 E)$2\sqrt{3}$

100. Agar $f(x)=x^2-8x+7$ bo'lsa $f(4-\sqrt{11})$ ni hisoblang. 00-02-08

A)2 B)$2-\sqrt{2}$ C)$2+\sqrt{11}$ D)3 E)$5-\sqrt{11}$

101. $\frac{\sqrt{x}+1}{x\sqrt{x}+x+\sqrt{x}}:\frac{1}{\sqrt{x}-x^2}+x$ ni soddalashtiring. 02-12-13

A)$2x$ B)2 C)1 D)$2x-1$ E)–1

102. $\frac{a^3+b^3}{a^2-ab+b^2}(a-b)-\frac{a^3-b^3}{a^2+ab+b^2}(a+b)$ ning $a=\sqrt{8}$ va $b=\sqrt{2}$ bo'lgandagi qiymatini hisoblang. 01-11-06

A)34 B)36 C)32 D)38 E)30

103. Agar $x<0$ bo'lsa, $\sqrt{x^2-12x+36}-\sqrt{x^2}$ ni soddalashtiring. 03-10-15

A)6 B)–6 C)$6-2x$ D)$2x-6$ E)8

104. $\sqrt{a^2-\sqrt{a^2+a+0,25}}+\sqrt{a^2-a+0,25}$ ni soddalashtiring $(a\ge 0.5)$ 01-01-62

A)$a-0,25$ B)$a-0,5$ C)$a-0,75$

D)$a-1$ E)$a+0,25$

105. Agar $x=e$ va $y=\pi$ bo'lsa, $\frac{\sqrt{x^2-2xy+y^2}}{\sqrt{x^2+2xy+y^2}}+\frac{2x}{x+y}$ ning qiymatini toping. 01-02-57

A)$\frac{3e-\pi}{\pi+e}$ B)$\frac{\pi-e}{\pi+e}$ C)–1 D)1 E)$\frac{2e-\pi}{\pi+e}$

106. Agar $x=\frac{4}{5}m$ bo'lsa, $\frac{\sqrt{m+x}+\sqrt{m-x}}{\sqrt{m+x}-\sqrt{m-x}}$ ning qiymatini toping. 03-10-12

A)2 B)$2m$ C)4 D)–2 E)$4m$

107. Agar $a=7+\sqrt{3}$ va $b=7-\sqrt{3}$ bo'lsa, $\frac{a^3-b^3}{a^2-b^2}\cdot\frac{a^2+ab+b^2}{a^3+3a^2b+3ab^2+b^3}$ ning qiymatini hisoblang. 01-06-09

A)192 B)198 C)196 D)194 E)190

108. Agar $a=0,0025$ bo'lsa, $\frac{\sqrt{(a+2)^2-8a}}{\sqrt{a}-\frac{2}{\sqrt{a}}}$ ifodaning qiymatini hisoblang. 02-03-08

A)–0,05 B)0,05 C)0,5 D)–0,5 E)0,005

109. $\left(\frac{a\sqrt{a}+b\sqrt{b}}{\sqrt{a}+\sqrt{b}}-\sqrt{ab}\right)(a-b)+\frac{2\sqrt{b}}{\sqrt{a}+\sqrt{b}}$ ni soddalashtiring. 01-01-67

A)$a-b$ B)$\frac{a-b}{a+b}$ C)$\frac{\sqrt{a}+\sqrt{b}}{\sqrt{a}-\sqrt{b}}$

D)$\sqrt{a}+\sqrt{b}$ E)1

110. $\left(\frac{1}{a+\sqrt{2}}-\frac{a^2+2}{a^3+2\sqrt{2}}\right)^{-1}\left(\frac{a}{2}-\frac{1}{\sqrt{2}}+\frac{1}{a}\right)^{-1}\times\frac{\sqrt{2}}{a+\sqrt{2}}$ ni soddalashtiring. 02-09-25

A)$\frac{1}{\sqrt{2}}$ B)2 C)–2 D)$\frac{1}{a\sqrt{2}}$ E)$-a\sqrt{2}$

111. $\left(\frac{\sqrt{y}-\sqrt{x}}{y-\sqrt{xy}+x}+\frac{x}{x\sqrt{x}+y\sqrt{y}}\right)\cdot\frac{x\sqrt{x}+y\sqrt{y}}{y^3}$ ni soddalashtiring. 03-03-08

A)$\sqrt{x}+\sqrt{y}$ B)$\sqrt{x}-\sqrt{y}$ C)$\sqrt{x}$ D)$\sqrt{y}$ E)$\frac{1}{y^2}$

112. $\left(\frac{1}{\sqrt{a}+\sqrt{b}}-\frac{\sqrt{a}+\sqrt{b}}{a-b}\right)\cdot\frac{a-2\sqrt{a}\sqrt{b}+b}{2\sqrt{b}}$ ni soddalashtiring 99-01-15

A)$\frac{\sqrt{b}-\sqrt{a}}{\sqrt{a}+\sqrt{b}}$ B)$\frac{\sqrt{a}-\sqrt{b}}{\sqrt{a}+\sqrt{b}}$ C)$\frac{\sqrt{b}+\sqrt{a}}{\sqrt{a}-\sqrt{b}}$

D)$\frac{\sqrt{a}-\sqrt{b}}{a+b}$ E)$\frac{\sqrt{b}-\sqrt{a}}{a-b}$

113. $\frac{(x+\sqrt{y})\sqrt{y-2\sqrt{y}x+x^2}}{y-x^2}$ ifodani $x=2\sqrt{6}$ va $y=23$ bo'lganda hisoblang. 97-01-57

A)1 B)–1 C)$\frac{1}{2}$ D)$-\frac{1}{2}$

E)to'g'ri javob berilmagan

114. $\frac{(\sqrt{m}+n)\sqrt{m-2\sqrt{m}\cdot n+n^2}}{m-n^2}$ ifodani $m=15$ va $n=3\sqrt{2}$ bo'lganda hisoblang. 97-06-56

A)1 B)–1 C)–3 D)0 E)to'g'ri javob keltirilmagan.

115. $c=\sqrt{13}-\sqrt{12}$ va $d=\sqrt{14}-\sqrt{13}$ sonlar uchun qaysi munosabat o'rinli? 98-07-16

A)$c>d$ B)$c<d$ C)$c=d$ D)$c=d-1$

E)$c^2+\sqrt{27}=d^2$

116. $c=\sqrt{12}+\sqrt{15}$ va $d=\sqrt{11}+\sqrt{17}$ sonlari uchun qaysi munosabat o'rinli? 98-12-15

A)$c<d$ B)$c>d$ C)$c+1=d$ D)$c=d$

E)$c^2+1+\sqrt{7}=d^2$

117. $a=\sqrt{101}+\sqrt{103}$, $b=\sqrt{99}+\sqrt{105}$ va $c=19,9$ sonlarini kamayish tartibida joylashtiring. 01-01-05

A)$a>b>c$ B)$c>b>a$ C)$a>c>b$

D)$c>a>b$ E)$b>a>c$

118. Agar $a=5,2$ bo'lsa, $\frac{a^2-a-6-(a+3)\sqrt{a^2-4}}{a^2+a-6-(a-3)\sqrt{a^2-4}}$ ning qiymatini toping 02-06-27

A)1,5 B)–2,5 C)–1,5 D)2,4 E)3,2

119. $\frac{\sqrt{x+4\sqrt{x-4}}-2}{\sqrt{x-4\sqrt{x-4}}+2}$ $(x \ge 8)$ ni soddalashtiring. 03-11-17

A)1 B)-1 C)0,5 D)0,25 E)2

120. Agar $a=\frac{1}{2}\left(\sqrt{\frac{2}{3}}+\sqrt{\frac{3}{2}}\right)$ bo'lsa, $\frac{\sqrt{a^2-1}}{a-\sqrt{a^2-1}}$ 02-03-14

ning qiymatini toping.

A)$\frac{1}{4}$ B)$\frac{3}{4}$ C)$\frac{1}{2}$ D)$\frac{1}{8}$ E)$\frac{5}{8}$

121. Agar $x=0{,}5\left(\frac{\sqrt{a}}{\sqrt{b}}-\frac{\sqrt{b}}{\sqrt{a}}\right)$, $a>0$ va $b>0$ bo'lsa, 01-01-20

$\frac{2b\sqrt{1+x^2}}{\sqrt{1+x^2}-x}$ ni hisoblang.

A)$\frac{a+b}{2}$ B)$2x+b$ C)$a+2b$

D)$2(a-b)$ E)$a+b$

122. $a=\sqrt{1995}+\sqrt{1997}$ va $b=2\sqrt{1996}$ ni taqqoslang. 97-05-17

A)$a<b$ B)$a>b$ C)$a=b$ D)$a=b+1$

E)$a=b-1$

123. $a=\sqrt{1996}+\sqrt{1998}$ va $b=2\cdot\sqrt{1997}$ ni taqqoslang. 97-09-17

A)$a>b$ B)$a<b$ C)$a=b$ D)$a=b+1$

E)$a=b-1$

124. $\sqrt{x+2\sqrt{x-1}}+\sqrt{x-2\sqrt{x-1}}$ $(1\le x\le 2)$ ni soddalashtiring. 03-04-17

A)$2\sqrt{x-1}$ B)2 C)-2 D)$-2\sqrt{x-1}$ E)4

125. $a\left(\frac{\sqrt{a}+\sqrt{b}}{2b\sqrt{a}}\right)^{-1}+b\left(\frac{\sqrt{a}+\sqrt{b}}{2a\sqrt{b}}\right)^{-1}$ ifodani 03-11-05

soddalashtiring.

A)$2ab$ B)ab C)$4ab$ D)$\frac{1}{2}ab$ E)$\frac{1}{4}ab$

126. $\frac{a+2a+3a+\ldots+na}{n^2-2n-3}:\left(\sqrt{ab}-\frac{ab}{a+\sqrt{ab}}\right)$: 03-08-13

$\frac{2(\sqrt{ab}-b)}{a-b}$ ni soddalashtiring.

A)$n+a$ B)$\frac{3a}{2(n-3)}$ C)$\frac{2a}{3(n+1)}$ D)$\frac{a}{(n-3)}$

E)$n-a$

127. $\sqrt{9-2\sqrt{20}}-\sqrt{9+2\sqrt{20}}$ ayirmaning qiymatini toping 96-05-23

A)-3 B)-6 C)-4 D)-5 E)4

128. $\sqrt{\frac{59^3+41^3}{100}-59\cdot 41}$ ifodaning qiymatini 97-07-14

toping.

A)24 B)100 C)18 D)50 E)36

129. $\sqrt{11-6\sqrt{2}}+\sqrt{11+6\sqrt{2}}$ ni hisoblang. 97-08-27

A)8 B)4 C)3 D)6 E)5

130. $\frac{4-\sqrt{2}}{4+\sqrt{2}}-\frac{4+\sqrt{2}}{4-\sqrt{2}}$ ning qiymatini toping. 97-10-24

A)$-\frac{8\sqrt{2}}{7}$ B)$8\sqrt{2}$ C)6 D)-4 E)$-4\sqrt{2}$

131. Agar $\sqrt{5}=m$ va $\sqrt{7}=n$ bo'lsa, $\sqrt{560}$ ni m va n orqali ifodalang. 03-05-12

A)$4mn$ B)$2mn$ C)$6mn$ D)$8mn$ E)$16mn$

3-§. Yuqori darajali ildizlar.

1. $(x^2-xy+y^2)(x+y)$ ifodaning $x=-\frac{1}{2}$ va $y=\frac{1}{\sqrt[3]{2}}$ bo'lgandagi qiymatini hisoblang. 96-03-19

A)$-\frac{5}{8}$ B)$\frac{9}{8}$ C)$\frac{3}{8}$ D)$-\frac{1}{8}$ E)$-\frac{3}{8}$

2. $\sqrt[3]{216\cdot 512}+\sqrt[5]{32\cdot 243}$ ni hisoblang. 00-03-07

A)45 B)48 C)49 D)50 E)54

3. $\sqrt[3]{2000\cdot 1998-1997\cdot 2001+5}$ ni hisoblang. 02-01-44

A)2 B)3 C)$\sqrt[3]{17}$ D)4 E)$\sqrt[3]{13}$

4. $a=\sqrt{45\cdot 10\cdot 18}$ va $b=\sqrt[3]{16\cdot 36\cdot 81}$ sonlarining eng kichik umumiy karralisi va eng katta umumiy bo'luvchisi ayirmasini toping. 02-11-06

A)54 B)72 C)154 D)162 E)172

5. $a=\sqrt{42\cdot 63\cdot 24}$ va $b=\sqrt[3]{512\cdot 49\cdot 56}$ Sonlarining eng katta umumiy bo'luvchisi shu sonlarning eng kichik umumiy karralisining necha foizini tashkil etadi? 03-08-05

A)2,5 B)2,(5) C)2,7 D)2,(7) E)3

6. Agar $n=81$ bo'lsa, $\sqrt[3]{n\sqrt{n}}$ ning qiymati qanchaga teng bo'ladi? 98-09-18

A)3 B)6 C)9 D)4 E)5

7. $\sqrt[7]{243\cdot 81^2\cdot 9^4}$ ni hisoblang. 99-08-17

A)27 B)81 C)9 D)$9\sqrt[7]{3}$ E)$27\sqrt[7]{3}$

8. $\sqrt[3]{2\sqrt{2\sqrt[3]{2}}}$ ni hisoblang. 02-01-01

A)$\sqrt[9]{32}$ B)$\sqrt[3]{16}$ C)$\sqrt[9]{8}$ D)$\sqrt[9]{64}$ E)64

9. Agar $x=\sqrt[8]{\frac{32\sqrt{2}}{\sqrt{8}}}$ bo'lsa, quyidagilardan qaysi biri butun son bo'ladi? 03-07-11

A)x B)x^2 C)x^3 D)x^5 E)x^7

10. $\sqrt{3\sqrt[3]{18}\cdot\sqrt[3]{96}}$ ni hisoblang. 99-05-17

A)6 B)18 C)9 D)10 E)12

11. $\sqrt[3]{9+\sqrt{73}}\sqrt[3]{9-\sqrt{73}}$ ni hisoblang 99-03-01

A)2 B)3 C)4 D)1 E)6

12. $\frac{\sqrt[3]{17}}{\sqrt[3]{544}}+\frac{\sqrt[3]{54}}{\sqrt[3]{128}}$ ni hisoblang. 01-02-56

A)1 B)1,2 C)1,25 D)1,5 E)1,75

13. $\sqrt[3]{2\sqrt{6}-5}\cdot\sqrt[6]{49+20\sqrt{6}}$ ni hisoblang. 98-01-55

A)1 B)−1 C)$4\sqrt{6}$ D)2 E)$-2\sqrt{6}$

14. $\sqrt{2\sqrt{2}-1}\cdot\sqrt[4]{9+4\sqrt{2}}$ ni soddalashtiring. 98-07-18

A)7 B)$\sqrt[4]{7}$ C)$2\sqrt{2}+1$ D)$\sqrt{7}$ E)$\sqrt{8}-1$

15. $\sqrt{3-2\sqrt{2}}\cdot\sqrt[4]{17+12\sqrt{2}}$ ni hisoblang. 98-08-35

A)$6\sqrt{2}$ B)2 C)4 D)1 E)$5-2\sqrt{2}$

16. $\sqrt[3]{97+56\sqrt{3}}$ ni soddalashtiring. 98-12-17

A)$\sqrt{3}+2$ B)$\sqrt{2}+3$ C)$\sqrt{2}+\sqrt{3}$ D)$7+4\sqrt{3}$ E)$\sqrt{3}+3$

17. $\frac{\sqrt[4]{3+2\sqrt{2}}}{\sqrt{\sqrt{2}+1}}$ ni hisoblang. 00-07-18

A)2 B)1,5 C)0,5 D)$\frac{2}{3}$ E)1

18. $\sqrt[3]{2-\sqrt{3}}\cdot\sqrt[6]{7+4\sqrt{3}}$ ni hisoblang. 00-08-55

A)1 B)−1 C)0 D)7 E)2

19. $\sqrt[6]{3-2\sqrt{2}}:\sqrt[3]{\sqrt{2}-1}$ ni hisoblang 00-08-56

A)3 B)2 C)1 D)−1 E)0

20. $\sqrt{4-2\sqrt{2}}\cdot\sqrt[4]{6+4\sqrt{2}}$ ning qiymatini toping. 01-09-07

A)2 B)1 C)3 D)4 E)6

21. $\sqrt[4]{68+8\sqrt{72}}\cdot\sqrt[8]{4-\sqrt{15}}\cdot\sqrt[8]{4+\sqrt{15}}+1$ ni soddalashtiring. 02-03-06

A)$3+\sqrt{2}$ B)$1+\sqrt{3}$ C)$\sqrt{2}+\sqrt{3}$ D)$2\sqrt{2}$ E)$2+\sqrt{2}$

22. $\sqrt[3]{16+16\sqrt{2}}\cdot\sqrt[6]{48-32\sqrt{2}}$ ni hisoblang. 03-04-18

A)2 B)6 C)4 D)8 E)5

23. $\left(\left(\sqrt[4]{2}-\sqrt[4]{8}\right)^2+5\right)\cdot\left(\left(\sqrt[4]{2}+\sqrt[4]{8}\right)^2-5\right)$ ni hisoblang. 03-05-05

A)17 B)16 C)20 D)$17\sqrt{2}$ E)25

24. $\sqrt[3]{1-\sqrt{3}}\sqrt[6]{4+2\sqrt{3}}$ ni hisoblang. 03-06-46

A)$-\sqrt{2}$ B)$\sqrt[3]{2}$ C)$-\sqrt[3]{2}$ D)$\sqrt{2}$ E)$\sqrt[3]{3}$

25. $\sqrt{3+2\sqrt{2}}\cdot\sqrt[4]{17-12\sqrt{2}}$ ni hisoblang. 01-03-22

A)2 B)1 C)$\sqrt{2}$ D)$2\sqrt{2}$ E)3

26. $(\sqrt[6]{9+4\sqrt{5}}+\sqrt[3]{\sqrt{5}+2})\cdot\sqrt[3]{\sqrt{5}-2}$ ni hisoblang. 98-12-13

A)2 B)1 C)3 D)4 E)6

27. $\sqrt[4]{\frac{4,1^3-2,15^3}{1,95}}+4,1\cdot2,15$ ni hisoblang. 99-10-02

A)1,5 B)1,75 C)2,25 D)2,75 E)2,5

28. $\sqrt[3]{80+48\sqrt{3}}$ ni soddalashtiring. 98-11-05

A)$4\sqrt{3}+1$ B)$2\sqrt{3}+2$ C)$4\sqrt{2}+2$ D)$3\sqrt{2}+2$ E)$2\sqrt{3}+1$

29. $\sqrt[3]{5\sqrt{2}-7}$ ni hisoblang. 99-08-05

A)$\sqrt{2}-2$ B)$1-\frac{\sqrt{2}}{2}$ C)$\frac{\sqrt{2}}{2}-1$ D)$1-\sqrt{2}$ E)$\sqrt{2}-1$

30. $\sqrt[3]{5\sqrt{2}+7}-\sqrt[3]{5\sqrt{2}-7}$ ni hisoblang. 01-05-03

A)2 B)1 C)3 D)4 E)5

31. $\frac{\sqrt[3]{26-15\sqrt{3}}\cdot(2-\sqrt{3})}{7-4\sqrt{3}}$ ni soddalashtiring. 03-05-10

A)1 B)$\frac{1}{3}$ C)$2-\sqrt{3}$ D)2 E)3

32. $\frac{\sqrt[3]{-24}+\sqrt[3]{81}+\sqrt[3]{192}}{\sqrt[3]{-375}}$ ni hisoblang. 98-11-59

A)−1 B)1 C)$-\frac{83}{125}$ D)$\frac{83}{125}$ E)0,99

33. $\sqrt[3]{9+2\sqrt{20}}+\sqrt[3]{9-2\sqrt{20}}$ ning qiymatini toping. 02-04-05

A)3 B)1 C)4 D)2 E)$2\sqrt[3]{2}$

34. $\frac{2}{2+\sqrt[3]{2}+\sqrt[3]{4}}$ kasrning maxrajini irratsionallikdan qutqaring. 03-08-09

A)$2-\sqrt[3]{4}$ B)$1-\sqrt[3]{4}$ C)$1+\sqrt[3]{4}$ D)$\sqrt[3]{2}$ E)$\sqrt[3]{4}$

35. $\frac{\sqrt[3]{(5+2\sqrt{6})^2}}{\sqrt[3]{5-\sqrt{24}}}-13-2\sqrt{6}$ ni hisoblang. 01-10-21

A)−1 B)−3 C)−7 D)−8 E)−11

36. $\left[\left(\frac{1}{81}\right)^{-\frac{1}{2}}\cdot(0,1)^{-2}+(0,01)^{-1}\right]^{\frac{1}{3}}$ ni hisoblang. 02-03-13

A)0,1 B)10 C)1 D)2 E)0,01

37. Agar $a>0$, $b>0$ va $c<0$ bo'lsa, $\sqrt[3]{a^3b^3c^3}$ quyidagilarning qaysi biriga teng bo'ladi? 98-11-55

A)$a|bc|$ B)$-abc$ C)$ab|c|$ D)$|abc|$ E)abc

38. $m=\sqrt[3]{3}$, $n=\sqrt{2}$ va $p=\sqrt[6]{10}$ sonlarini o'sish tartibida yozing. 99-10-16

A)$p<n<m$ B)$n<p<m$ C)$m<p<n$ D)$n<m<p$ E)$p<m<n$

39. 1; $\sqrt{2}$; $\sqrt[3]{3}$; $\sqrt[4]{4}$ sonlarini kamayish tartibida joylashtiring. 00-08-29

A)1; $\sqrt{2}$; $\sqrt[3]{3}$; $\sqrt[4]{4}$ B)1; $\sqrt[3]{3}$; $\sqrt{2}$; $\sqrt[4]{4}$

C)$\sqrt[3]{3}$, $\sqrt{2}$, $\sqrt[4]{4}$; 1 D)$\sqrt{2}$; $\sqrt[4]{4}$; $\sqrt[3]{3}$; 1

E)$\sqrt[3]{3}$; 1; $\sqrt[4]{4}$; $\sqrt{2}$

40. $a=\sqrt{3}$, $b=\sqrt[3]{5}$ va $c=\sqrt[4]{7}$ sonlarini o'sish tartibida joylashtiring. 02-05-03

A)$a<b<c$ B)$c<b<a$ C)$b<a<c$ D)$b<c<a$ E)$c<a<b$

41. $a=\sqrt[3]{2}, b=\sqrt[4]{3}$ va $c=\sqrt[6]{5}$ sonlarni o'sish tartibida joylashtiring. 02-12-34

A) $a<b<c$ B) $c<b<a$ C) $a<c<b$
D) $b<a<c$ E) $c<a<b$

42. $\dfrac{x^{\sqrt[4]{\pi}}-y^{\sqrt[4]{\pi}}}{x^{2\sqrt[4]{\pi}}-y^{2\sqrt[4]{\pi}}}$ ni qisqartiring. 98-11-62

A) $\dfrac{1}{x^{\sqrt[4]{\pi}}+y^{\sqrt[4]{\pi}}}$ B) $x^{\sqrt[4]{\pi}}+y^{\sqrt[4]{\pi}}$ C) $x^{\sqrt{\pi}}-y^{\sqrt{\pi}}$
D) $\dfrac{1}{x^{\sqrt[4]{\pi}}-y^{\sqrt[4]{\pi}}}$ E) $x^{\pi/2}+y^{\pi/2}$

43. $\dfrac{\sqrt[3]{x^2}+2\sqrt[3]{x}+1}{x+3\sqrt[3]{x^2}+3\sqrt[3]{x}+1}-\dfrac{1}{\sqrt[3]{x}+1}$ ni soddalashtiring. 97-09-81

A) 1 B) $\dfrac{1}{\sqrt[3]{x}+1}$ C) $\sqrt[3]{x}$ D) 0 E) $\sqrt[3]{x}+1$

44. Agar $a=\sqrt{2}$ va $b=\sqrt[3]{3}$ bo'lsa, $\sqrt{a^2-2ab+b^2}+\sqrt{a^2+2ab+b^2}$ ning qiymatini hisoblang. 01-10-01

A) $\sqrt{18}$ B) $\sqrt[3]{12}$ C) $\sqrt{18}$ D) $\sqrt[3]{24}$ E) $\sqrt{27}$

45. $\left(\dfrac{1+\sqrt{x}+x}{x\sqrt{x}-1}\right)^{-1}-x^{\frac{1}{2}}$ ni soddalashtiring. 02-11-12

A) $\sqrt{x}+1$ B) 1 C) $\sqrt{x}-1$ D) -1 E) $\sqrt{x}$

46. $\dfrac{\sqrt{\sqrt{a^3}}+\sqrt[12]{a^9}}{a\sqrt[4]{a}\cdot\sqrt{a}}$ ni soddalashtiring. 01-06-24

A) $2a^{-2}$ B) $2a^{-1}$ C) a^{-1} D) a^{-2} E) $2a^{-3}$

47. $\dfrac{\sqrt{a^3b}\cdot\sqrt[3]{a^{-4}}+\sqrt{a^4b^3}:\sqrt[6]{a}}{(b^2-ab-2a^2)\cdot\sqrt{ab}}$ ni soddalashtiring. 02-01-20

A) $\dfrac{a\sqrt[3]{a}}{b-2a}$ B) $a\sqrt[3]{a}$ C) $\dfrac{b-2a}{a}$ D) $a\sqrt{a}$ E) $\dfrac{a\sqrt{a}}{a-2b}$

48. $\dfrac{a-a\sqrt{a}}{\sqrt[3]{a^2}+\sqrt[6]{a^5}+a}+\dfrac{\sqrt[3]{a^2}-a}{\sqrt[3]{a}+\sqrt{a}}+2\sqrt{a}$ ni soddalashtiring. 00-03-17

A) $2\sqrt[3]{a}$ B) $2\sqrt{a}$ C) $\sqrt[3]{a}+2\sqrt{a}$ D) 0 E) $\dfrac{1}{\sqrt[3]{a}}$

49. $\sqrt[3]{a}=\sqrt[3]{c}-\sqrt[3]{b}$ bo'lsa, $(a+b-c)^3$ ni toping. 02-01-16

A) $-27abc$ B) $-81abc$ C) $-81a^2b^2c^2$
D) $-27abc^2$ E) $81abc$

50. Eng katta sonni toping. 97-09-63

A) 3 B) $\sqrt[3]{26}$ C) $\sqrt{10}$ D) $\sqrt[4]{82}$ E) $\sqrt[5]{242}$

51. Eng katta son berilgan javobni toping. 97-04-03

A) $\sqrt{15}$ B) $\sqrt[3]{65}$ C) $\sqrt[4]{81}$ D) 4 E) $\sqrt[4]{4^3}$

52. $\dfrac{x^2-2x\sqrt{3}-\sqrt[3]{4}+3}{x-\sqrt{3}}$ ifodani $x=\sqrt{3}-\sqrt[3]{2}$ bo'lgandagi qiymatini hisoblang. 03-08-14

A) $\sqrt{3}$ B) $\sqrt[3]{2}$ C) 1 D) 0 E) $\dfrac{\sqrt{3}}{2}$

53. Agar $a=27$ bo'lsa, $\left(\dfrac{a-b}{\sqrt[3]{a}-\sqrt[3]{b}}+\sqrt[3]{ab}\right):(\sqrt[3]{a}+\sqrt[3]{b})+(\sqrt[3]{a^2}-\sqrt[3]{b^2}):(\sqrt[3]{a}+\sqrt[3]{b})$ ning qiymatini hisoblang. 99-09-02

A) 4 B) 4,5 C) 5 D) 6 E) 6,5

4-§. Ratsional ko'rsatkichli daraja.

1. $\dfrac{15^{2/3}\cdot 3^{1/3}}{5^{-1/3}}$ ni hisoblang. 98-05-07

A) 45 B) 15 C) 5 D) 3 E) 30

2. $\dfrac{30^{1/3}\cdot 3^{2/3}}{10^{-2/3}}$ ni hisoblang. 99-07-09

A) 15 B) 20 C) 60 D) 45 E) 30

3. $\dfrac{(\frac{1}{49})^{-1/2}-(\frac{1}{8})^{-1/3}}{64^{2/3}}$ ni hisoblang. 98-04-09

A) $\dfrac{3}{4}$ B) $\dfrac{5}{16}$ C) $\dfrac{2}{5}$ D) $\dfrac{4}{7}$ E) $\dfrac{5}{6}$

4. $0{,}027^{-\frac{1}{3}}-\left(-\dfrac{1}{6}\right)^{-2}+256^{\frac{3}{4}}-3^{-1}+5{,}5^{0}$ ni hisoblang. 00-03-06

A) 33 B) 32,97 C) 31 D) 32 E) 31,99

5. $\left(\sqrt{0{,}2}-\sqrt{0{,}8}+\sqrt{1{,}8}+\sqrt{3{,}2}\right):\dfrac{1}{5^{\frac{1}{2}}}-2$ ning qiymatini toping. 01-09-13

A) 4 B) 6 C) 2 D) 1 E) 0

6. $1^{-0{,}43}-(0{,}008)^{-\frac{1}{3}}+(15{,}1)^{0}$ ni hisoblang. 03-06-54

A) 5 B) -3 C) -4 D) -5 E) -2

7. $a=\left(\dfrac{1}{3}\right)^{\sqrt{3}}, b=\sqrt[4]{3^6}$ $c=\left(\sqrt{3}\right)^{\frac{1}{2}}$ sonlarini o'sish tartibida joylashtiring 01-06-33

A) $a<b<c$ B) $a<c<b$ C) $c<b<a$
D) $c<a<b$ E) $b<a<c$

8. $\left(\sqrt[4]{13}\sqrt{\dfrac{\sqrt[4]{13}-1}{(\sqrt[4]{13}+1)^2}}+\dfrac{\sqrt[4]{13}-1}{\sqrt[4]{(\sqrt{13}-1)^2}}\right)^{5}\cdot(\sqrt{13}-1)^{\frac{4}{5}}$ ni hisoblang. 03-08-06

A) $\sqrt{13}+1$ B) $\sqrt{13}-1$ C) 12 D) $(\sqrt{13}-1)^{-1}$ E) $2\sqrt{13}$

9. $\frac{a^{2/3}\cdot b^{2/3}(ab)^{-1/6}}{(ab)^{-8/3}}$ ni soddalashtiring. 98-09-27

A) $(ab)^{4/3}$ B) $-(ab)^{4/3}$ C) $(ab)^3$ D) $(ab)^{5/3}$ E) $(ab)^{8/3}$

10. $b\cdot\sqrt{ab}\sqrt[3]{ab}\cdot(a\sqrt[3]{a^2b^2\cdot\sqrt{ab}})^{-1}$ ni soddalashtiring. 98-11-16

A) $b\cdot a^{-2}$ B) $b^{-2}\cdot a$ C) $b^{-1}\cdot a$ D) $b\cdot a^{-1}$ E) $b\cdot a$

11. $\left(\left(a^{-\frac{3}{2}}b\right)\left(ab^{-2}\right)^{\frac{1}{2}}\left(a^{-1}\right)^{-\frac{2}{3}}\right)^3$ ni soddalashtiring. 03-07-51

A) $\frac{1}{a^{\frac{1}{4}}b^{\frac{3}{4}}}$ B) a^4b^6 C) $\frac{a^4}{b^6}$ D) $\frac{b^6}{a^4}$ E) a^2b^3

12. $(a^{\frac{1}{2}}+b^{\frac{1}{2}})\cdot(a-a^{\frac{1}{2}}b^{\frac{1}{2}}+b)$ ni soddalashtirib, a va b asosli darajalar ko'rsatkichlarining yig'indisini hisoblang. 99-07-19

A)1 B)4 C)2 D)0 E)3

13. $(a^{1/2}-b^{1/2})(a+a^{1/2}b^{1/2}+b)$ ni soddalashtiring, so'ng a va b lar daraja ko'rsatkichlarining yig'indisini hisoblang. 98-05-17

A)2 B)1 C)4 D)$1\frac{1}{2}$ E) 3

14. $\frac{(5b^{1/4}+i0)(b^{3/4}-2b^{1/2})}{b-4b^{1/2}}$ ni soddalashtiring. 98-05-18

A)$1\frac{1}{4}$ B)$\frac{1}{5}$ C) 1 D)5 E)–2

15. $\frac{(30-15a^{\frac{1}{4}})\cdot(2a^{\frac{1}{4}}+a^{\frac{1}{2}})}{8a^{\frac{1}{4}}-2a^{\frac{3}{4}}}$ kasrni qisqartiring. 96-07-29

A)15 B)10 C)7,5 D)–7,5 E)–10

16. $\frac{a^{\frac{3}{4}}-36a^{\frac{1}{4}}}{a^{\frac{1}{2}}-6a^{\frac{1}{4}}}$ ni soddalashtiring. 00-08-53

A) $\sqrt[4]{a}-6$ B) $\sqrt[4]{a}+6$ C) $\sqrt{a}-6$

D) $\sqrt{a}+6$ E) $a+6$

17. a ning qanday qiymatida $8^{\frac{2}{3}}\cdot a-(-8)^{-\frac{2}{3}}$ ifoda musbat bo'ladi? 02-11-04

A) $a>1$ B) $a>\frac{1}{16}$ C) $a>-\frac{1}{16}$ D) $a<\frac{1}{16}$ E)0

18. $\left(\frac{x^{\frac{1}{2}}-y^{\frac{1}{2}}}{x-y}-\frac{1}{x^{\frac{1}{2}}-y^{\frac{1}{2}}}\right)\cdot\frac{x+2x^{\frac{1}{2}}y^{\frac{1}{2}}+y}{4y^{\frac{1}{2}}}$ ni soddalashtiring 97-03-33

A) $\sqrt{x}+\sqrt{y}$ B) $\frac{1}{\sqrt{x}-\sqrt{y}}$ C)1 D) $-\frac{1}{2}$ E) $\frac{\sqrt{x}+\sqrt{y}}{2(\sqrt{y}-\sqrt{x})}$

19. $\left(\frac{a^{0,5}-b^{0,5}}{a^{0,5}+b^{0,5}}+\frac{2a^{0,5}b^{0,5}}{a-b}\right)\cdot\frac{b-2a^{0,5}b^{0,5}+a}{a+b}$ ni soddalashtiring. 97-06-18

A) $-\frac{1}{\sqrt{a}+\sqrt{b}}$ B)1 C) $a^{0,5}-b^{0,5}$ D)–1 E) $\frac{\sqrt{a}-\sqrt{b}}{\sqrt{a}+\sqrt{b}}$

20. $\frac{a+b}{a+2a^{0,5}b^{0,5}+b}:\left(\frac{a^{0,5}+b^{0,5}}{a^{0,5}-b^{0,5}}-\frac{2a^{0,5}b^{0,5}}{a-b}\right)$ ni soddalashtiring. 97-11-18

A) $\sqrt{a}+\sqrt{b}$ B) $\frac{1}{\sqrt{a}-\sqrt{b}}$ C) $\frac{2\sqrt{ab}}{\sqrt{a}+\sqrt{b}}$ D)1 E) $\frac{\sqrt{a}-\sqrt{b}}{\sqrt{a}+\sqrt{b}}$

21. Agar $a=8$ va $b=2$ bo'lsa, $\frac{a^{\frac{3}{2}}-b^{\frac{3}{2}}}{a^{\frac{1}{2}}-b^{\frac{1}{2}}}-\frac{a^{\frac{3}{2}}+b^{\frac{3}{2}}}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}$ 99-02-11

ning qiymati nechaga teng bo'ladi?

A)10 B)6 C)8 D)12 E)4

22. $\frac{27a+1}{9a^{\frac{2}{3}}-3\sqrt[3]{a}+1}-\frac{27a-1}{9\sqrt[3]{a^2}+3a^{\frac{1}{3}}+1}$ ni soddalashtiring. 99-05-05

A) $\sqrt[3]{a}-1$ B)1 C)2 D) $a+1$ E) $a-3$

23. $\frac{729a+1}{81\sqrt[3]{a^2}-9a^{\frac{1}{3}}+1}-\frac{729a-1}{81a^{\frac{1}{2}}+9\sqrt[3]{a}+1}$ ni soddalashtiring. 00-09-14

A)1 B)2 C)3 D)9 E) $a+2$

24. $\left(\frac{a^{\frac{3}{2}}+b^{\frac{3}{2}}}{(a^{\frac{1}{2}}+b^{\frac{1}{2}})^2}-\frac{a^{\frac{1}{2}}b^{\frac{1}{2}}}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}\right)\cdot(a-b)$ ning $a=0,16$ va $b=0,81$ bo'lgandagi qiymatini hisoblang. 95-10-17

A) $-\frac{1}{4}$ B) $-\frac{1}{8}$ C) $\frac{1}{3}$ D) $-\frac{1}{5}$ E) $\frac{1}{6}$

25. $\frac{a-b}{a+b+2\sqrt{ab}}\cdot\frac{a^{\frac{1}{2}}-b^{\frac{1}{2}}}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}$ ni soddalashtiring 01-05-05

A)–1 B) $a+b$ C) $\frac{1}{a+b}$ D) $\frac{ab}{a+b}$ E) $\sqrt{ab}$

26. $\left(\dfrac{x^{\frac{3}{2}}-y^{\frac{3}{2}}}{x^{\frac{1}{2}}-y^{\frac{1}{2}}}-x-y\right)\cdot x^{\frac{1}{3}}y^{\frac{1}{3}}$ ning $x=16^{\frac{1}{3}}$ va $y=4^{\frac{1}{3}}$ bo'lgandagi qiymatini hisoblang. 01-06-32

A)2 B)4 C)$2\sqrt[3]{4}$ D)3 E)$2^{3/2}$

27. $\left(\dfrac{a^{\frac{1}{2}}+1}{a^{\frac{1}{2}}-1}+\dfrac{a^{\frac{1}{2}}-1}{a^{\frac{1}{2}}+1}-\dfrac{4}{a-1}\right)^{-3}$ ni soddalashtiring. 01-06-34

A)$\frac{3}{8}$ B)$\frac{5}{8}$ C)$\frac{1}{8}$ D)$\frac{3}{4}$ E)$\frac{1}{2}$

28. $\left(\dfrac{9}{a+8}-\dfrac{a^{\frac{1}{3}}+2}{a^{\frac{2}{3}}-2a^{\frac{1}{3}}+4}\right)\cdot\dfrac{a^{\frac{4}{3}}+8a^{\frac{1}{3}}}{1-a^{\frac{2}{3}}}+\dfrac{5-a^{\frac{2}{3}}}{1+a^{\frac{1}{3}}}$ ni soddalashtiring. 02-10-07

A)5 B)$\dfrac{1}{1-a}$ C) $\dfrac{2}{1-a^{\frac{2}{3}}}$ D)4 E)$a+1$

29. Agar $a=729$ bo'lsa, $\dfrac{a^{\frac{4}{3}}-8a^{\frac{1}{3}}}{a^{\frac{2}{3}}+2a^{\frac{1}{3}}+4}:(\sqrt[3]{a}-2)$ qiymatini toping. 02-12-44

A)9 B)6 C)12 D)15 E)3

30. Agar $x=256$ bo'lsa, $\dfrac{x-1}{x^{\frac{3}{4}}+x^{\frac{1}{2}}}\cdot\dfrac{x^{\frac{1}{2}}+x^{\frac{1}{4}}}{x^{\frac{1}{2}}+1}\cdot x^{\frac{1}{4}}+1$ ning qiymatini hisoblang. 03-04-09

A)14 B)15 C)16 D)13 E)12

31. $\sqrt{a^{\frac{2}{3}}-2a^{-\frac{1}{3}}+a^{-\frac{4}{3}}}:a^{-\frac{2}{3}}$ ni soddalashtiring. $(a\ge 1)$ 00-02-20

A)$a-2$ B)a^2-1 C)$a-1$ D)$\sqrt{a-1}$ E)$\sqrt{a^2-1}$

32. $\sqrt{a-2a^{1/2}b^{1/2}+b}-\dfrac{a-b}{a^{1/2}-b^{1/2}}$ ni soddalashtiring $(a>b)$ 98-10-44

A)$2b^{1/2}$ B)$2a^{1/2}$ C)$-2b^{1/2}$ D)$-2a^{1/2}$ E)$2a^{1/2}-2b^{1/2}$

33. $\sqrt{\dfrac{a^{\frac{3}{2}}-b^{\frac{3}{2}}}{a^{\frac{1}{2}}-b^{\frac{1}{2}}}+a^{\frac{1}{2}}b^{\frac{1}{2}}}-\sqrt{\dfrac{a^{\frac{3}{2}}+b^{\frac{3}{2}}}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}-a^{\frac{1}{2}}b^{\frac{1}{2}}}$ ni soddalashtiring. $(b>a>0)$. 00-01-07

A)$2\sqrt{a}$ B)$2\sqrt{b}$ C)$2(\sqrt{b}-\sqrt{a})$ D)$2(\sqrt{a}-\sqrt{b})$ E)$2\sqrt{b}-\sqrt{a}$

34. $\dfrac{2a^{-1/3}}{a^{2/3}-3a^{-1/3}}-\dfrac{a^{2/3}}{a^{5/3}-a^{2/3}}-\dfrac{a+1}{a^2-4a+3}$ ni soddalashtiring. 03-01-59

A)0 B)1 C)-1 D)$\dfrac{a-1}{a+1}$ E)$\dfrac{a}{a-3}$

35. $a=64$ bo'lganda, $\dfrac{a^{\frac{4}{3}}-8a^{\frac{1}{3}}b}{a^{\frac{2}{3}}+2a^{\frac{1}{3}}b^{\frac{1}{3}}+4b^{\frac{2}{3}}}:\left(1-\dfrac{2b^{\frac{1}{3}}}{a^{\frac{1}{3}}}\right)-4a^{\frac{2}{3}}$ ning qiymatini hisoblang. 03-04-28

A)-46 B)-48 C)-44 D)-50 E)-42

1-§. Kvadrat tenglama.

1. $(3x-1)\cdot(x-2)=0$ bo'lsa, $3x-1$ qanday qiymatlarni qabul qilishi mumkin. 96-07-13

A)faqat $\frac{1}{3}$ B)faqat 0 C)$\frac{1}{3}$ yoki 0 D)$\frac{1}{3}$ yoki 2 E)0 yoki 5

2. $(2x+1)(x-1,5)=0$ bo'lsa, $2x+1$ qanday qiymatlar qabul qiladi? 97-03-13

A)faqat 0 B)faqat $-\frac{1}{2}$ C)0 yoki $-\frac{1}{2}$ D)0 yoki 1,5 E)4 yoki 0

3. Agar $(x-5)(\frac{1}{5}x+4)=0$ bo'lsa, $\frac{1}{5}x+4$ qanday qiymatlarni qabul qiladi? 97-07-13

A)faqat 0 B)faqat -20 C)0 yoki 5 D)0 yoki 8 E)-20 yoki 0

4. $(4x+1)\cdot(x-\frac{1}{4})=0$ bo'lsa, $4x+1$ qanday qiymatlarni qabul qiladi? 97-10-13

A)faqat $-\frac{1}{4}$ B)faqat $\frac{1}{4}$ C)faqat 0 D)0 yoki 2 E)$-\frac{1}{4}$ yoki $\frac{1}{4}$

5. $x^2+5x-6=0$ kvadrat tenglamaning kichik ildizini katta ildiziga nisbatini toping. 97-05-22

A)6 B)-6 C)$\frac{1}{6}$ D)$-\frac{1}{6}$ E)1

6. $x^2-5x+6=0$ kvadrat tenglamaning kichik ildizini katta ildiziga nisbatini toping. 97-09-22

A)$\frac{2}{3}$ B)$-\frac{1}{3}$ C)$\frac{3}{2}$ D)$-\frac{1}{2}$ E)-3

7. $x^2-13x+36=0$ tenglama ildizlarining o'rta proporsional qiymatini toping. 01-02-23

A)4 B)9 C)6,5 D)13 E)6

8. $x^2-18x+45=0$ tenglamaning katta ildizini toping. 02-04-03

A)-3 B)3 C)-15 D)15 E)5

9. Agar a va b sonlari $x^2-8x+7=0$ kvadrat tenglamaning ildizlari bo'lsa, $\frac{1}{a^2}+\frac{1}{b^2}$ ni hisoblang. 97-99-84

A)$1\frac{1}{49}$ B)$1\frac{1}{50}$ C)$2\frac{1}{15}$ D)$1\frac{1}{10}$ E)$2\frac{1}{49}$

10. Agar $a^2+6a+9=0$ bo'lsa, $a^3+3a^2-9a-27$ ning qiymatini toping. 00-02-13

A)0 B)3 C)1 D)4 E)1

11. $x^2+2x+1=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $x_1^3-x_2^3$ ni hisoblang. 97-07-23

A)1 B)3 C)4 D)0 E)-2

12. $x^2-\frac{\sqrt{85}}{4}x+1\frac{5}{16}=0$ tenglamaning katta va kichik ildizlari kublarining ayirmasini toping. 03-08-19

A)-2 B)-1 C)2 D)1 E)$\frac{1}{2}(\sqrt{85}-6)$

13. 3 va -2 sonlari qaysi tenglamaning ildizlari ekanligini ko'rsating. 03-01-49

A)$x^2-x=6$ B)$x^2+x=6$ C)$x^2+6=x$ D)$x^2+6=-x$ E)$x^2+1=6x$

14. $x^2-9x+(m^2-4)(m^2-9)=0$ tenglama $x=0$ ildiziga ega bo'ladigan m ning barcha qiymatlari ko'paytmasini toping. 97-02-24

A)36 B)$4\sqrt{3}$ C)-6 D)6 E)$6\sqrt{3}$

15. Ildizlaridan biri $\frac{1}{6+\sqrt{2}}$ ga teng bo'lgan ratsional koeffitsiyentli kvadrat tenglama tuzing. 02-05-15

A)$34x^2-12x+1=0$ B)$x^2-12x+1=0$ C)$34x^2-12x-1=0$ D)$x^2-12x+34=0$ E)$34x^2+12x-1=0$

16. Ildizlaridan biri $3+\frac{\sqrt{2}}{2}$ ga teng bo'lgan rasional koeffitsientli kvadrat tenglama tuzing. 02-11-14

A)$x^2-3x+9=0$ B)$x^2-6x+17=0$ C)$x^2-12x+9=0$ D)$2x^2+12x-17=0$ E)$2x^2-12x+17=0$

17. $8^{n+2}\cdot 12^{n-3}$ ko'paytmaning natural bo'luvchilari soni 42 ga teng bo'lsa, n nechaga teng bo'ladi? 03-10-11

A)4 B)3 C)2 D)5 E)6

18. $2x^2-3x-2=0$ va $2x^2-5x+2=0$ tenglamalarning umumiy ildizi 5 dan qancha kam? 06-07-15

A)1,5 B)2 C)2,5 D)3 E)3,5

19. m ning qanday qiymatlarida $x^2+mx+8=0$ va $x^2+x+m=0$ tenglamalar umumiy ildizga ega bo'ladi? 02-01-22

A)-6 B)-7 C)9 D)-5 E)5

20. p ning qanday qiymatida $x^2+px+15=0$ tenglamaning ildizlaridan biri 5 ga teng bo'ladi? 00-10-21

A)-4 B)4 C)-2 D)2 E)-8

21. k ning qanday qiymatida $kx^2+12x-3=0$ tenglamaning ildizlaridan biri 0,2 ga teng bo'ladi? 01-01-09

A)135 B)60 C)-135 D)15 E)-15

22. a ning qanday qiymatida $x^2-(a-1)x+36=0$ tenglamaning ildizlaridan biri 4 ga teng bo'ladi? 01-06-13
A)13 B)14 C)11 D)10 E)-14

23. $x^2+2ax+a=0$ tenglamaning ildizlaridan biri 1 ga teng. Tenglamaning ikkinchi ildizini toping. 01-11-09
A)$-\frac{4}{3}$ B)$-\frac{1}{2}$ C)$\frac{1}{3}$ D)$-\frac{1}{3}$ E)$-\frac{2}{3}$

24. k ning qanday qiymatlarida $(k-2)x^2+7x-2k^2=0$ tenglama $x=2$ yechimga ega? 01-12-39
A)1; 3 B)1; -3 C)-1; 3 D)-2; 3 E)-2; -3

25. $x^2-4x-(a-1)(a-5)=0$ tenglamaning ildizlaridan biri 2 ga teng bo'ladigan a ning barcha qiymatlarini toping. 02-05-17
A)$(-\infty;\infty)$ B)$(-\infty;-2)\cup(2;\infty)$
C)$(-\infty;-4)\cup(4;\infty)$ D){3} E)(2; 4)

26. $x^2-px+8=0$ tenglamaning ildizlaridan biri 4 ga teng. Bu tenglamaning barcha koeffitsiyentlari yig'indisini toping. 96-06-25
A)3 B)2 C)15 D)14 E)4

27. $x^2-6x+q=0$ tenglamaning ildizlaridan biri 2 ga teng. Bu tenglamaning barcha koeffitsiyentlari yig'indisini toping. 97-02-25
A)2 B)-6 C)3 D)-5 E)4

28. $x^2+px-12=0$ tenglamaning ildizlaridan biri 4 ga teng. Shu tenglamaning koeffitsiyentlari yig'indisini toping. 97-08-24
A) -13 B)-10 C)-12 D)-11 E) -9

29. $x^2+px-12=0$ tenglamaning ildizlaridan biri 2 ga teng. $p:(-12)$ nimaga teng? 97-12-24
A)$\frac{1}{3}$ B)$-\frac{5}{12}$ C)$\frac{2}{3}$ D)$-\frac{1}{3}$ E)$-\frac{2}{3}$

30. Ildizlari $x^2+px+q=0$ tenglamaning ildizlariga teskari bo'lgan tenglamani ko'rsating. 00-07-12
A) $px^2+qx+1=0$ B) $qx^2+px-1=0$
C) $qx^2+px+1=0$ D) $qx^2-px+1=0$
E) $qx^2-px-1=0$

31. x^3+2nx^2+mx+5 ko'phad x^2-x-2 ga qoldiqsiz bo'linadi. n ni toping. 98-10-58
A)$\frac{21}{12}$ B)$-\frac{21}{12}$ C)$\frac{12}{21}$ D)$-\frac{12}{21}$ E)-2

32. x^3+2nx^2+mx+5 ko'phad x^2-1 ga qoldiqsiz bo'linadi. $m+n$ ni toping. 98-03-11
A)5 B)$\frac{7}{2}$ C)$-\frac{7}{2}$ D)-7 E)-6

33 $(8x+1)\cdot(x-\frac{1}{4})=0$ bo'lsa, $8x+1$ qanday qiymatlarni qabul qilishi mumkin. 2006
A)faqat $\frac{1}{4}$ B)faqat $-\frac{1}{8}$ C)0 yoki 3 D) faqat 0

2-§. Kvadrat tengsizlik.

1. $(x-2)(x+3)>0$ tengsizlikni yeching. 96-03-25
A)$(-\infty;2)\cup(3;\infty)$ B)$(-\infty;-3)\cup(2;\infty)$
C)$(-\infty;-2)\cup(3;\infty)$ D)$(-\infty;\infty)$ E)$(0;\infty)$

2. $(x+2)(x-3)>0$ tengsizlikni yeching. 96-12-26
A)$(-\infty,\infty)$ B)$(-\infty;-3)\cup(2;\infty)$ C)$(0;\infty)$
D)$(-\infty;-2)\cup(3;\infty)$ E)$(-\infty;2)\cup(3;\infty)$

3. $(x-1)(x+2)>0$ tengsizlikni yeching. 96-11-26
A)$(-\infty;1)\cup(2;\infty)$ B)$(0;\infty)$ C)$(-\infty;-2)\cup(1;\infty)$
D)$(-\infty;\infty)$ E)$(-\infty;-1)\cup(2;\infty)$

4. $(y+6)(y+2)<0$ tengsizlikning barcha butun yechimlari yig'indisini toping. 96-06-23
A)12 B)20 C)-12 D)-20 E)-9

5. $(x-a)(x-b)\le 0$ tengsizlikning yechimlar to'plami [2; 6] oraliqdan iborat. ab ning qiymatini toping. 99-02-21
A)10 B)11 C)13 D)12 E)8

6. $2x^2-9x+4<0$ tengsizlikning butun yechimlari ko'paytmasini toping. 96-07-20
A)0 B)4 C)24 D)8 E)6

7. $2x^2\le 5x+12$ tengsizlikning butun yechimlari yig'indisini toping. 97-03-20
A)4 B)9 C)7 D)5 E)6

8. $3x^2\le 13x-4$ tengsizlikning butun yechimlari ko'paytmasini toping. 97-07-20
A)12 B)6 C)30 D)24 E)0

9. $x^2+2x-15<0$ tengsizlikning natural sonlardagi yechimlari ko'paytmasini toping. 01-02-26
A)0 B)2 C)4 D)6 E)24

10. $2-x-x^2\ge 0$ tengsizlikning eng katta butun yechimini toping. 01-05-25
A)1 B)2 C)-1 D)-2 E)0

11. $9x^2-6x+1>0$ tengsizlikni yeching. 02-01-52
A)$(-\infty;-\frac{1}{3})\cup(-\frac{1}{3};\infty)$ B)$(-\frac{1}{3};\infty)$ C)$(\frac{1}{3};\infty)$
D)$(-\infty;\frac{1}{3})$ E)$(-\infty;\frac{1}{3})\cup(\frac{1}{3};\infty)$

12. $x^2-x+1>0$ tengsizlikni yeching. 00-05-39
A)Ø B)$[0;\infty)$ C)$(-\infty;\infty)$
D)$(-\infty;0)$ E)$(0;\infty)$

13. $2x^2-3x\le 9$ tengsizlikning butun yechimlari yig'indisini toping. 97-10-20
A)3 B)4 C)5 D)6 E)8

14. $(x-2)^2+3(x-2)\ge 7-x$ tengsizlikni yeching. 97-01-10
A)$[0,1]\cup[3,\infty)$ B)$[-2,1]$ C)$[-3,3]$
D)$[3;\infty)$ E)$(-\infty;-3]\cup[3;\infty)$

15. $(x+2)(x-2)-2(x-1)\le 23-2x$ tengsizlikni yeching. 97-06-10
A)$(-\infty;5]$ B)$(0;25]$ C)$[-5;5]$ D)$[-\sqrt{21};\sqrt{21}]$ E)Ø

16. $2(x-1)(x+1)-x(x+3)<2-3x$ tengsizlikni yeching. 97-11-10
A)$(-\infty;2)$ B)$(-2;2)$ C)$(0;4)$
D)$(1;\infty)$ E)$(4;\infty)$

17. $10x^2+20x-30<0$ tengsizlikning yechimlari to'plamida $q=10x^2-20x-30$ qanday qiymatlar qabul qiladi? 00-10-50
A)$-40<q<120$ B)$q\in R$ C)$q>0$
D)$0<q<30$ E)$q<0$

18. $(x-1)(x+2)>0$ tengsizlikni yeching. 2006
A)$(1;2)$ B)$(-\infty;1)\cup(2;\infty)$ C)$(-2;1)$
D)$(-\infty;-2)\cup(1;\infty)$

19. $16x^2-8x+3>0$ tengsizlikni yeching. 2006
A)$[0;\infty)$ B)Ø C)$(-\infty;0)$ D)$(-\infty;\infty)$

3-§. Viyet teoremasi.

1. $2x^2-7x+c=0$ tenglamaning ildizlaridan biri 0,5 ga teng. Shu tenglamaning ikkinchi ildizini toping. 03-12-01
A)4 B)3 C)0 D)6,5 E)5,5

2. $2x^2+x-a=0$ tenglamaning ildizlaridan biri 2 ga teng. Ikkinchi ildizning qiymatini toping 98-10-43
A)2,5 B)–2,5 C)1,5 D)–1,5 E)–2

3. $2x^2-5x+2=0$ tenglamaning ildizlari yig'indisi va ko'paytmasining yig'indisini hisoblang. 98-10-13
A)2,5 B)7 C)2,8 D)3,5 E)3,2

4. $x^2+px-35=0$ tenglamaning ildizlaridan biri 7 ga teng. Ikkinchi ildiz va p ning qiymatini toping. 99-01-18
A)–5; –2 B)–5;2 C) 5, 2 D)5; –2 E)5;1

5. $2x^2-26x+72=0$ tenglamaning ildizlarining o'rta proporsionalini toping. 00-01-12
A)4 B)5 C)7 D)6 E)8

6. $1998x^2-2000x+2=0$ tenglamani yeching. 00-08-64
A)1; $\frac{2}{1998}$ B)–1; $\frac{2}{1998}$ C)1; $-\frac{2}{1998}$
D)–1; $-\frac{2}{1998}$ E)1; –1

7. $x^2-\frac{1}{2}kx+k^2-11k+24=0$ $(k=const)$ 00-01-10
tenglamaning ildizlaridan biri 0 ga teng. Shu shartni qanoatlantiruvchi ildizlarning yig'indisini toping.
A)4,5 B)5,5 C)6 D)6,5 E)5

8. $x^2-3ax+2a^2-ab-b^2=0$ tenglamani yeching. 02-07-05
A)$a-b;\ 2a+b$ B)$-a+b;\ -2a+b$
C)$-a-b;\ 2a-b$ D)$a+b;\ 2a+b$
E)$a-b;\ 2a-b$

9. $x^2-2ax+a^2-1=0$ tenglamaning ikkala ildizi –2 va 4 orasida joylashgan bo'lsa, a ning qiymati qaysi oraliqda o'zgaradi? 03-09-06
A)$(-3;3)$ B)$(-1;5)$ C)$(-3;-1)\cup(3;5)$
D)$(-1;3)$ E)$(0;3)$

10. $x^2+4x-5=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $x_1^3\cdot x_2^3$ ni hisoblang. 98-05-21
A)124 B)–125 C)130 D)5 E)–124

11. Agar x_1 va x_2 $9x^2+3x-1=0$ tenglamaning ildizlari bo'lsa, $\frac{3x_1x_2}{x_1+x_2}$ ning qiymatini toping. 02-11-13
A)–1 B)1 C)2 D)$\frac{1}{3}$ E)3

12. Agar x_1 va x_2 $2x^2+3x-4=0$ tenglamaning ildizlari bo'lsa, $\frac{x_1^3-x_2^3}{x_1-x_2}$ ning qiymatini toping. 03-03-17
A)0,25 B)–0,25 C)4,25 D)–4,25 E)3,25

13. x_1 va x_2 $x^2+x-5=0$ tenglamaning ildizlari ekanligi ma'lum. $x_1^2+x_2^2$ ning qiymatini toping. 96-13-18
A)10 B)12 C)11 D)9 E)8

14. a va b sonlari $3x^2-2x-6=0$ tenglamaning ildizlari bo'lsa, a^2+b^2 ni hisoblang. 97-04-24
A)6 B)8 C)$4\frac{4}{9}$ D)$4\frac{2}{9}$ E)$3\frac{5}{9}$

15. Agar $x^2+x-1=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $x_1^3+x_2^3$ ning qiymati qanchaga teng bo'ladi? 98-04-25
A)1 B)3 C)2 D)–2 E) 4

16. $2x^2-5x+1=0$ tenglama ildizlari kublarining yig'indisini toping. 99-08-27
A)$11\frac{7}{8}$ B)12 C)$12\frac{8}{9}$ D)$12\frac{7}{8}$ E)13

17. Agar x_1 va x_2 $x^2+x-5=0$ tenglamaning ildizlari bo'lsa, $x_1^2x_2^4+x_2^2x_1^4$ ning qiymatini hisoblang. 01-10-02
A)225 B)145 C)125 D)175 E)275

18. x_1 va x_2 lar $3x^2-8x-15=0$ tenglamaning ildizlari bo'lsa, $\frac{x_1}{x_2}+\frac{x_2}{x_1}$ ning qiymatini toping. 00-08-32

A) $-3\frac{19}{45}$ B) $-3\frac{1}{45}$ C) 5 D) $-\frac{8}{3}$ E) $-1\frac{11}{13}$

19. Agar $x^2-3x-6=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $\frac{1}{x_1^3}+\frac{1}{x_2^3}$ ni toping. 00-03-18

A) $\frac{1}{3}$ B) 0,5 C) $-0,5$ D) 0,375 E) $-0,375$

20. Agar x_1 va x_2 $x^2+x-3=0$ tenglamaning ildizlari bo'lsa, $\frac{1}{x_1^2x_2^4}+\frac{1}{x_1^4x_2^2}$ ning qiymatini hisoblang. 02-06-09

A) $\frac{5}{81}$ B) $\frac{7}{81}$ C) $\frac{11}{81}$ D) $\frac{4}{27}$ E) $\frac{3}{16}$

21. Agar x_1 va x_2 $x^2+3x-3=0$ tenglamaning ildizlari bo'lsa, $x_1^4+x_2^4$ ning qiymatini toping. 03-01-05

A) 207 B) 192 C) 243 D) 168 E) 252

22. $ax^2+bx+c=0$ tenglamaning koeffitsiyentlari $b=a+c$ tenglikni qanoatlantiradi. Agar x_1 va x_2 berilgan kvadrat tenglamaning ildizlari bo'lsa, $\frac{x_2}{x_1}+\frac{x_1}{x_2}$ ning qiymatini hisoblang. 03-01-03

A) $\frac{a^2-c^2}{ac}$ B) $\frac{a}{c}+\frac{c}{a}$ C) $\frac{1}{a}+\frac{1}{c}$

D) $\frac{1}{a}-\frac{1}{c}$ E) $\frac{2(a+c)}{ac}$

23. Agar m va n sonlar $x^2+3mx-5n=0$ $(m\cdot n\neq 0)$ tenglamaning ildizlari bo'lsa, $n-m$ ning qiymati nechaga teng bo'ladi? 03-11-06

A) 25 B) 24 C) 18 D) 12 E) 15

24. $x^2-(a+2)x+a+7=0$ tenglama ildizlariga teskari sonlar yig'indisi $\frac{7}{12}$ ga teng bo'lsa, a ni toping. 03-05-21

A) 5 B) 6 C) -5 D) $\frac{5}{12}$ E) 2

25. q ning qanday qiymatida $x^2-8x+q=0$ tenglama ildizlari kvadratlarining yig'indisi 34 ga teng bo'ladi? 03-07-62

A) 15 B) -12 C) 12 D) -15 E) 9

26. m ning qanday qiymatida $3x^2-21x+m=0$ tenglama ildizlari kvadratlarining yig'indisi 25 ga teng bo'ladi? 03-09-04

A) 36 B) -36 C) 24 D) 42 E) -42

27. $x^2+x+a=0$ tenglamaning x_1 va x_2 ildizlari orasida $\frac{1}{x_1}+\frac{1}{x_2}=\frac{1}{2}$ munosabat o'rinli. a ning qiymatini toping. 03-11-67

A) $-2,5$ B) -2 C) -1 D) $-1,5$ E) $-0,5$

28. x_1 va x_2 $x^2+ax+6=0$ tenglamaning ildizlari bo'lib, $\frac{1}{x_1}+\frac{1}{x_2}=\frac{1}{2}$ tenglikni qanoatlantirsa, a ning qiymatini toping. 96-12-75

A) -1 B) -2 C) -3 D) 3 E) 2

29. x_1 va x_2 $x^2+x+a=0$ tenglamaning ildizlari bo'lib, $\frac{1}{x_1}+\frac{1}{x_2}=\frac{1}{2}$ tenglikni qanoatlantiradi. a ning qiymatini toping. 96-09-18

A) -1 B) -2 C) -3 D) 2 E) 1

30. a ning qanday qiymatlarida $x^2+(a+2)x+a$ uchhad ildizlari kvadratlarining yig'indisi 3 ga teng bo'ladi? 02-08-21

A) -1 B) 1 C) -2 D) 3 E) 2

31. x_1 va x_2 $x^2+|a|x+6=0$ tenglamaning ildizlari bo'lib, $x_1^2+x_2^2=13$ tenglikni qanoatlantirsa, x_1+x_2 nechaga teng. 96-03-77

A) 5 B) -6 C) 6 D) -7 E) -5

32. Agar $x^2-4ax+7a^2=0$ tenglamaning x_1 va x_2 ildizlari uchun $x_1^2+x_2^2=2$ tenglik o'rinli bo'lsa, a^2 ning qiymatini toping. 02-03-21

A) 1 B) $\frac{1}{4}$ C) 2,25 D) $\frac{1}{9}$ E) $\frac{4}{9}$

33. m ning qanday qiymatlarida $4x^2-(\sqrt{3}m-3)x-9=0$ tenglamaning ildizlari qarama-qarshi sonlar bo'ladi? 98-07-34

A) 1,5 va $-1,5$ B) $\sqrt{3}$ va $-\sqrt{3}$ C) 1,5 D) $\sqrt{3}$ E) 0

34. $7x^2+(5k^2-8k-13)x-k^4=0$ tenglamaning ildizlari qarama-qarshi sonlar bo'ladigan k ning barcha qiymatlari yig'indisini aniqlang 03-10-28

A) 1,2 B) 1,4 C) 1,6 D) 1,8 E) 2,4

35. Agar $x^2-x+q=0$ tenglamaning x_1 va x_2 ildizlari $x_1^3+x_2^3=19$ shartni qanoatlantirsa, q ning qiymati qanchaga teng bo'ladi? 98-12-84

A) -5 B) -2 C) -12 D) -1 E) -6

36. k ning qanday qiymatlarida $kx^2-6kx+2k+3=0$ tenglama ildizlari kublarining yig'indisi 72 ga teng bo'ladi? 02-01-14

A) 0,5 B) 0,9 C) 2 D) 1,9 E) 2,5

37. q ning qanday qiymatida $x^2-x-q=0$ tenglama ildizlari kublarining yig'indisi 19 ga teng bo'ladi? 03-10-14

A) 6 B) 5 C) 7 D) 4 E) 3

38. $x^2 + px + 6 = 0$ tenglama ildizlari ayirmasining kvadrati 40 ga teng bo'lsa, ildizlarining yig'indisi qancha bo'lishini toping. 98-07-35

A) $\sqrt{40}$ B)8 C)–8 D)–8 va 8 E)0

39. $x^2 + px + 6 = 0$ tenglama ildizlari ayirmasining kvadrati 40 ga teng. p ning qiymatini toping. 98-12-33

A)–8; 8 B)8 C)–8 D) $4+\sqrt{16}$ E) $4-\sqrt{10}$

40. a ning qanday qiymatlarida son o'qida $x^2 + ax + 12 = 0$ tenglamaning ildizlari orasidagi masofa 1 ga teng bo'ladi? 01-02-62

A)±5 B)±6 C)±7 D)±8 E)7

41. $x^2 + px + 12 = 0$ tenglamaning yechimlari x_1 va x_2 bo'lsa, $|x_1 - x_2| = 1$ munosabat p ning nechta qiymatida bajariladi? 01-05-21

A)2 ta B)1 ta C)3 ta D)4 ta
E)bunday son yo'q

42. x_1 va x_2 sonlari $3x^2 + 2x + b = 0$ tenglamaning ildizlari bo'lib, $2x_1 = -3x_2$ ekanligi ma'lum bo'lsa, b ning qiymatini toping. 00-08-09

A)–8 B)6 C)4 D)–3 E)2

43. n ning qanday qiymatlarida $x^2 - 12x + n = 0$ tenglama ildizlaridan biri ikkinchisidan $2\sqrt{5}$ ga ortiq bo'ladi? 02-07-04

A)31 B)30 C)3 D)29 E)1

44. Agar $x^2 - 3x + m = 0$ tenglamaning x_1 va x_2 ildizlari uchun $3x_1 - 2x_2 = 14$ munosabat o'rinli bo'lsa, m ning qiymatini toping. 03-03-11

A)–4 B)4 C)6 D)–6 E)3

45. p ning qanday qiymatida $x^2 - px + 5 = 0$ tenglamaning ildizlaridan biri boshqasidan 4 ga katta? 03-03-12

A)6 B)4 C)–4 D)±6 E)±4

46. $x^2 - 5x + a = 0$ tenglamaning ildizlaridan biri ikkinchisidan 9 marta katta bo'lsa, a ning qiymatini toping. 05-04-09

A)2,5 B)2,4 C)2,25 D)3,5 E)4,5

47. m ning qanday qiymatlarida $x^2 - 4mx + 48 = 0$ teglamaning ildizlaridan biri boshqasidan 3 marta katta bo'ladi? 00-07-47

A)2 B)±4 C)±3 D)4 E)±2

48. q ning qanday qiymatida $x^2 - 8x + q = 0$ tenglamaning ildizlaridan biri boshqasidan uch marta katta bo'ladi? 02-11-15

A)6 B)8 C)12 D)16 E)18

49. m ning qanday qiymatlarida $4x^2 - (3 + 2m)x + 2 = 0$ tenglamaning ildizlaridan biri ikkinchisidan sakkiz marta kichik bo'ladi? 03-07-28

A)3 B) 6 C) 6; 3 D)3, 5 E)– 6, – 3

50. x_1 va x_2 sonlar $x^2 + 3x + k = 0$ tenglamaning ildizlari va $\frac{x_1}{x_2} = -\frac{2}{5}$ bo'lsa, k ning qiymatini toping. 03-05-24

A)– 10 B)– 7 C)– 12 D)– 8 E)– 6

51. a ning qanday musbat qiymatida $8x^2 - 30x + a^3 = 0$ tenglamaning ildizlaridan biri ikkinchisining kvadaratiga teng bo'ladi? 01-05-20

A)3 B)1 C)2 D)4 E)5

52. a ning qanday qiymatida $4x^2 - 15x + 4a^2 = 0$ tenglamaning ildizlaridan biri ikkinchi ildizning kvadratiga teng bo'ladi? 03-08-16

A) $2\sqrt{2}$ B)± $2\sqrt{2}$ C) $1{,}5\sqrt{1{,}5}$ D)± $1{,}5\sqrt{1{,}5}$ E) $3\sqrt{2}$

53. n natural son va $n^2x^2 + 3n^3x + 4 = 0$ tenglama ildizlarining o'rta arifmetigini o'rta geometrigiga nisbati –3 ga teng bo'lsa, n ning qiymatini toping. 03-10-09

A)2 B)1 C)3 D)4 E)5

54. $5x^2 + bx - 28 = 0$ tenglamaning ildizlari x_1 va x_2 uchun $5x_1 + 2x_2 = 1$ munosabat o'rinli. Agar b butun son ekanligi ma'lum bo'lsa, uning qiymatini toping. 02-12-09

A)9 va –13 B)13 C)–9 va 13 D)–9 E)–13

55. Ildizlari $x_1^2 + x_2^2 = 13$ va $x_1 + x_2 = 5(x_1 - x_2)$ shartni qanoatlantiruvchi kvadrat tenglamani tuzing. Bunda $x_1 > x_2$ 99-08-28

A) $x^2 - 5x + 6 = 0$ B) $5x^2 - x - 4 = 0$
C) $3x^2 + 2x - 5 = 0$ D) $2x^2 - 3x + 1 = 0$
E) $x^2 - 6x + 5 = 0$

56. $x^2 + px + q = 0$ tenglamaning ildizlari $x^2 - 3x + 2 = 0$ tenglamaning ildizlaridan ikki marta katta. $p + q$ ning qiymatini toping. 99-09-20

A)14 B)2 C)– 2 D)– 14 E)10

57. x_1 va x_2 $3x^2 - 5x + 2 = 0$ kvadrat tenglamaning ildizlari. Ildizlari $\frac{x_1}{3x_2 - x_1}$ va $\frac{x_2}{3x_1 - x_2}$ ga teng bo'lgan kvadrat tenglama tuzing. 02-11-15

A) $3x^2 - 7x + 4 = 0$ B) $7x^2 + 9x - 2 = 0$
C) $7x^2 + 9x + 2 = 0$ D) $7x^2 - 9x + 2 = 0$
E) $3x^2 + 7x - 4 = 0$

58. $z^2 + pz + q = 0$ tenglamaning har bir ildizini 4 taga orttirib, ildizlari hosil bo'lgan sonlarga teng bo'lgan kvadrat tenglama tuzildi. Agar uning ozod hadi $q + 64$ ga teng bo'lsa, p nechaga teng bo'ladi? 98-09-10

A)–10 B)–11 C)–13 D)–14 E)–12

59. y_1 va y_2 $y^2+my+n=0$ tenglamaning ildizlari. y_1 va y_2 ning har birini 4 taga orttirib, ildizlari hosil bo'lgan sonlarga teng bo'lgan kvadrat tenglama tuzildi. Agar uning ozod hadi $n-24$ (n – dastlabki tenglamaning ozod hadi) ga teng bo'lsa, m nechaga teng? 98-02-11
A)9 B)10 C)11 D)12 E)8

60. $x^2-ax+a-1=0$ tenglamaning ildizlari x_1 va x_2 bo'lsin. a ning qanday qiymatida $x_1^2+x_2^2$ yig'indi eng kichik qiymatga ega bo'ladi? 99-03-16
A)1 B)2 C)1,5 D)2,5 E)3

61. x_1 va x_2 $x^2-px+p-1=0$ tenglamaning ildizlari. p ning qanday qiymatida $x_1^2+x_2^2$ yig'indi eng kichik qiymatni qabul qiladi? 99-02-16
A)2 B)–2 C)1 D)–1 E)3

62. Agar y_1 va y_2 $y^2-by+b-1=0$ tenglamaning ildizlari bo'lsa, b ning qanday qiymatida $y_1^2+y_2^2$ ifodaning qiymati eng kichik bo'ladi? 00-01-13
A)1,2 B)0,85 C)1 D)1,5 E)2

63. a ning qanday haqiqiy qiymatlarida $x^2+ax+a-2=0$ tenglama ildizlari kvadratlarining yig'indisi eng kichik bo'ladi? 00-08-35
A)1 B)3 C)2 D)–1 E)4

64. a ning qanday qiymatida $x^2-(a-2)x-a-1=0$ tenglama ildizlari kvadratlarining yig'indisi eng kichik qiymatga ega bo'ladi? 03-05-16
A)1 B)2 C)$\frac{1}{2}$ D)4 E)3

65. m ning qanday qiymatida $x^2+(m-1)x+m^2-1,5=0$ tenglama ildizlari kvadratlarining yig'indisi eng katta bo'ladi? 01-07-16
A)1,5 B)–1,5 C)1 D)–1 E)–2

66. m ning qanday qiymatida $x^2+(2-m)x-m-3=0$ tenglama ildizlari kvadratlarining yig'indisi eng kichik bo'ladi? 01-08-16
A)2 B)1 C)–1 D)–3 E)Ø

67. k ning qanday qiymatlarida $x^2+(k^2-4k-5)x+k=0$ tenglamaning ildizlari o'zaro qarama-qarshi bo'ladi? 02-10-46
A)–1 B)–1; 1 C)–5; 1 D)–2; 2 E)–5

68. m ning qanday qiymatlarida $3x^2+(3m-15)x-27=0$ tenglamaning ildizlari qarama-qarshi sonlar bo'ladi? 98-12-32
A)5 B)0 C)–3; 3 D)–5 E)0; 5

69. a parametrning qanday butun qiymatida $2x^2+6ax+a=0$ tenglama ildizlari kvadratlarining yig'indisi 38 ga teng? 03-11-01
A)–2 B)2 C)–3 D)–1 E)4

70. a ning qanday qiymatida $x^2+(a+2)x+a=3$ tenglama ildizlari kvadratlarining yig'indisi eng kichik bo'ladi? 01-12-25
A)0 B)–1 C)1 D)3 E)–2

71. $x^2-(a+14)x+a^2=0 (a>0)$ tenglamaning ildizlari orasida $x_1=9x_2$ munosabat o'rinli. Berilgan tenglamaning katta ildizini toping. 02-12-27
A)9 B)18 C)24 D)6 E)12

72. x_1 va x_2 $x^2-17x+6=0$ tenglamaning ildizlari bo'lsa, $x_1x_2^2+x_1^2x_2$ nmg qiymatini toping. 2006
A)–102 B)–32 C)102 D)77

73. $x^2+px+q=0$ tenglamaning ildizlari $x^2-3x-10=0$ tenglamaning ildizlaridan ikki marta katta. $p+q$ ning qiymatini toping. 2006
A)2 B)–7 C)–14 D)–46

74. x_1 va x_2 $x^2-11x+12=0$ tenglamaning ildizlari bo'lsa, $x_1x_2^2+x_1^2x_2$ ning qiymatini toping. 2006
A)132 B)–78 C)–132 D)–168

75. Agar $x^2-x+q=0$ tenglamaning x_1 va x_2 ildizlari $x_1^3+x_2^3=37$ shartini qanoatlantirsa, q ning qiymatini toping. 2006
A)–11 B)–5 C)–19 D)–12

4-§. Kvadratik funksiya, uning grafigi.

1. $y=x^2+4x-2$ parabolaning uchi koordinatalar tekisligining qayerida joylashgan? 97-02-21
A)I chorakda B)II chorakda C)OY o'qida D)III chorakda E)IV chorakda

2. $y=x^2-6x+10$ parabolaning uchi koordinatalar tekisligining qaerida joylashgan? 97-08-21
A)II choraqda B)III chorakda C)OY o'qida D)IV chorakda E)I chorakda

3. $y=x^2+8x+12$ parabolaning uchi koordinatalar tekisligining qayerida yotadi? 97-12-20
A)I chorakda B)II chorakda C)OY o'qida D)IV chorakda E)III chorakda

4. $y=-2x^2+2x+3$ parabola uchining abssissasini toping. 99-06-44
A)–0,5 B)3,5 C)0,5 D)2 E)1

5. $y=x^2-4x+3$ parabolaning uchi koordinatalar tekisligining qayerida joylashgan? 96-06-21
A)to'rtinchi chorakda B)Ox o'qida C)uchinchi chorakda D)ikkinchi chorakda E)birinchi chorakda

6. Agar $a>0$ bo'lsa, $y=x^2-2x-a$ parabolaning uchi koordinatalar tekisligining qaysi choragida joylashadi? 99-09-14
A)I B)II C)III D)IV E)aniqlab bo'lmaydi

7. t ning qanday qiymatida $-t^2+14t-31$ uchhad eng katta qiymatga erishadi? 98-09-08
A)6 B)5 C)8 D)7 E)9

8. Koordinatalar boshidan $y=x^2-4x+3$ parabolaning simmetriya o'qigacha bo'lgan masofani toping. 99-10-20
A)3 B)1 C)2,5 D)1,5 E)2

9. $y=2x^2-6x+17$ funksiya grafigining simmetriya o'qi tenglamasini ko'rsating 02-10-50
A)$x=1,5$ B)$y=4x-6$ C)$y=3$ D)$x=6$
E)$y=2x+17$

10. $y=-3x^2+12x-16$ parabola uchining koordinatalari yig'indisini toping. 02-11-18
A)–1 B)1 C)0 D)–2 E)2

11. $y=-2x^2+5x-3$ funksiyaning eng katta qiymatini toping. 03-08-46
A)$\frac{1}{8}$ B)$\frac{1}{4}$ C)5 D)–3 E)$\frac{1}{2}$

12. $y=-3x^2+bx+c$ parabolaning uchi $M(-4;3)$ nuqtada yotadi. $b+c$ ning qiymatini toping. 03-11-69
A)-72 B)-55 C)-57 D)-48 E)-69

13. Agar A(1; –2) nuqta $y=x^2+px+q$ parabolaning uchi bo'lsa, p va q ning qiymatini toping. 98-01-24
A) $p=2$, $q=-1$ B) $p=4$, $q=2$ C) $p=q=-2$,
D) $p=1$, $q=-2$ E) $p=-2$, $q=-1$

14. a ning nechta butun qiymatida $y=(x-2a)^2+a^2-9a+14$ parabola uchining absissasi musbat, ordinatasi esa manfiy bo'ladi? 03-08-18
A)1 B)2 C)4 D)5 E)6

15. a ning nechta butun qiymatida $y=(x-4a)^2+a^2+10a+21$ parabola uchining abssissasi musbat, ordinatasi esa manfiy bo'ladi? 02-11-19
A)0 B)1 C)2 D)3 E)4

16. $y=x^2-8x+7$ funksiyaning qiymatlar sohasini toping. 97-11-15
A)(2; ∞) B)[–9;∞) C)[9;∞) D)[–4; ∞) E)(–∞;∞)

17. $y=-x^2+6x-12$ funksiyaning qiymatlar sohasini toping. 99-09-48
A)(– 3; ∞) B)[– 3;∞) C)(–∞;–3] D)(– ∞; – 3)
E)(– ∞; 3]

18. $y=\frac{3+4x-x^2}{2}$ funksiyaning qiymatlar sohasini toping. 97-01-15
A)$(0;\infty)$ B)$(-\infty;1,5]$ C)$[-\frac{1}{2};\infty)$
D)$(-\infty;3,5]$ E)$(-\infty;\infty)$

19. $y=x^2+4x+11$ fynksiyaning eng kichik qiymatini toping 02-04-06
A)4 B)11 C)11/4 D)7 E)4/11

20. a ning qanday qiymatida $(a-7)^2+(a-8)^2+(a-12)^2$ ifoda eng kichik qiymatga ega bo'ladi? 03-09-04
A)9 B)10 C)8 D)11 E)12

21. $(m-3)(m-7)$ ifodaning qiymati m ning har qanday qiymatida musbat bo'lishi uchun unga qanday eng kichik butun sonni qo'shish kerak? 00-01-14
A)4 B)8 C)3 D)6 E)5

22. $y=-x^2+bx+c$ funksiya x = –1 nuqtada 5 ga teng eng katta qiymatni qabul qilsa, $y(1)$ ni toping. 01-12-28
A)–1 B)0 C)1 D)1,5 E)–1,5

23. a ning qanday qiymatida $y=ax^2+3x-5$ funksiya $x=-3$ nuqtada eng kichik qiymatga ega bo'ladi? 02-04-07
A)0,4 B)–0,4 C)0,5 D)-0,5 E)0

24. Agar B(–2; –7) nuqta $y=kx^2+8x+m$ parabolaning uchi bo'lsa, k va m ning qiymatini toping. 03-08-24
A) $k=1$, $m=-9$ B) $k=2$, $m=-1$
C) $k=-1$, $m=-16$ D) $k=-2$, $m=-4$
E) $k=2$, $m=1$

25. $y=ax^2+bx+c\,(a>0)$ funksiya $x=1$ nuqtada 4ga teng eng kichik qiymatga ega. Agar $y(2)=6$ bo'lsa, a, b va c larni toping. 01-09-20
A) $a=4, b=2, c=6$ B) $a=3, b=6, c=2$
C) $a=6, b=-2, c=4$ D) $a=2, b=-4, c=-2$
E) $a=2$, $b=-4$, $c=6$

26. ax^2+bx+c kvadrat uchhad $x=8$ da nolga aylanishi hamda $x=6$ da –12 ga teng eng kichik qiymatni qabul qilishi ma'lum. $\sqrt{a+b+c}$ ni toping
A)$\sqrt{63}$ B)$\sqrt{65}$ C)8 D)$\sqrt{50}$ E)7

27. ax^2+bx+c kvadrat uchhadning $x=1$ da eng katta qiymati 3 ga, $x=-1$ da nolga teng bo'ladi. Bu uchhadning qiymati $x=5$ da nechaga teng bo'ladi?
A)–9 B)–6 C)–12 D)–3 E)–1,5

28. Agar $f(0)=24$ bo'lib, $x=\frac{1}{2}$ da $f(x)=ax^2+bx+c$ kvadrat uchhad o'zining 25 ga teng bo'lgan eng katta qiymatiga erishsa, kvadrat uchhadning ko'rinishini toping.
A)$-4x^2-4x+24$ B)$-4x^2+24$
C)$8x^2-2x+24$ D)$-4x^2+4x+24$
E)$16x^2-6x+24$

29. $y = x^2 + 4(a-2)x + 5$ parabolaning uchi $x + a = 0$ to'g'ri chiziqda yotsa, a ning qiymatini toping. 03-05-22
A)4 B)8 C)–4 D)–2 E)1

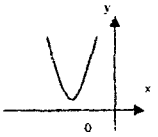
30. Agar $a < 0$ va $b^2 - 4ac < 0$ bo'lsa, $y = ax^2 + bx + c$ funksiyaning grafigi koordinatalar tekisligining qaysi choraklarida joylashadi? 97-12-21
A)I, II B)III, IV C)II, III D)I, II va IV
E)I, II, III va IV

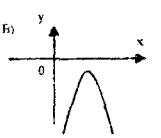
31. $y = -3x^2 + 8x - 8$ funksiyaning grafigi qaysi choraklarda joylashgan. 98-11-13
A)II, III, IV B)barcha choraklarda
C)III, IV D)I, II, III E)I, II, IV

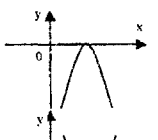
32. $f(x) = -4x^2 + 2x - 1$ funksiyaning grafigi koordinatalar tekisligining qaysi choraklarida joylashgan? 00-08-11
A)III; IV B)I; II; III C)I; III D)II; IV
E)I; II; III; IV

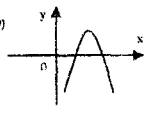
33. $y = -2x^2 + 4x - 8$ funksiyaning grafigi qaysi choraklarda joylashgan? 00-10-09
A)II, III, IV B)I, II, III, IV C)I, III, IV
D)I, II, III E)III, IV

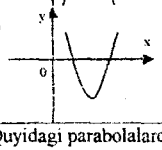
34. $y = ax^2 + bx + c$ $(a > 0,\ b^2 - 4ac > 0)$ funksiyaning grafigi quyidagilardan qaysi biri bo'lishi mumkin? 96-06-22

A) 

B) 

C) 

D) 

E) 

35. Quyidagi parabolalardan qaysi biri OX o'qi bilan kesishadi? 99-09-15
1) $y = 2x^2 - 5x + 8$; 2) $y = -2x^2 - 8x - 8$
3) $y = x^2 - 3x - 8$; 4) $y = -3x^2 + 6x - 12$
A)1 B)2 C)3 D)4
E)hech qaysinisi

36. $y = -6x^2 + 7x - 2$ kvadrat funksiyaning nollari yig'indisini toping 00-05-27
A) $-1\frac{1}{6}$ B) $1\frac{5}{6}$ C) $\frac{1}{6}$ D) $1\frac{1}{5}$ E) $\frac{5}{6}$

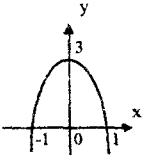
37. $y = 4x^2 + 4x + 1$ va $y = 2x + 1$ funksiyalar grafiklari kesishish nuqtalarining koordinatalarining yig'indisini toping. 01-07-25
A)–0,5 B)1 C)0,5 D)1,5 E)–1

38. $y = x^2 + px + q$ parabola $x = 5$ nuqtada Ox o'qiga urinadi. $\frac{p}{q}$ ni toping. 01-09-38
A)1 B)–2 C)2,5 D)–2,5 E)2

39. $y = x^2 + bx + 4$ parabola b ning nechta butun qiymatida absissalar o'qiga urinadi? 03-01-04
A)0 B)1 C)2 D)3 E)4

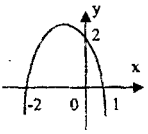
40. $y = 2x^2 + bx + c$ parabolaning uchi (–3; -5) nuqtada joylashgan. Bu funksiya nollarining o'rta arifmetigini toping. 98-06-31
A)–1 B)–2 C)–3 D)1 E)5

41. Rasmda qanday funksiyaning grafigi tasvirlangan? 98-01-16



A) $y = 3x - x^2$
B) $y = 3x^2 - 3$
C) $y = 3(1 - x^2)$
D) $y = x^2 + 3x$
E) $y = 3x^2 + 3$

42. Quyida keltirilgan funksiyalardan qaysi birining grafigi rasmdagi paraboladan iborat? 98-02-12



A) $y = (x+2)(x+1)$
B) $y = (x-2)(1-x)$
C) $y = (x+2)(x-1)$
D) $y = (x+2)(1-x)$
E) $y = (2-x)(1-x)$

43. a ning qanday qiymatlarida $y = ax^2 + 4x + c$ parabola koordinata o'qlarini A(1; 0) va B(0; 4) nuqtalarda kesib o'tadi? 00-06-11
A)–8 B)4 C)–4 D)1 E)Ø

44. $y = ax^2 + c$ funksiyaning grafigi $A(-1;-3)$ va $B(3;0)$ nuqtalardan o'tishi ma'lum bo'lsa, $\frac{c}{a}$ ning qiymati nechaga teng? 03-05-34
A)– 9 B)9 C)– 8 D)– 10 E) $\frac{8}{27}$

45. t ning qanday qiymatlarida $f(x) = 3x^2 + 2tx - (t-1)^2$ funksiya $f(-1) = -2$ shartini qanoatlantiradi? 01-12-41
A)±3 B)±1 C)3 D)–3 E)±2

46. A(0; –2), B(2; –1) va C(4; –2) nuqtalardan o'tuvchi parabola qaysi funksiyaning grafigi hisoblanadi? 98-03-10

A) $y=-\frac{1}{2}x^2+2x-3$ B) $y=-\frac{1}{4}x^2+x-2$

C) $y=-\frac{1}{4}x^2+x-3$ D) $y=-\frac{1}{3}x^2+\frac{4}{3}x-\frac{7}{3}$

E) $y=-\frac{1}{2}x^2+2x-2$

47. A(1; 1), B(0; 3) va C(2; 3) nuqtalardan o'tuvchi parabola qaysi funksiyaining grafigi hisoblanadi? 98-10-59

A) $y=2x^2+2x-3$ B) $y=2x^2-2x-3$

C) $y=2x^2-4x+3$ D) $y=2x^2-3x+2$

E) $y=2x^2+3x-2$

48. Agar $a<0$ va $b^2-4ac<0$ bo'lsa, $y=ax^2+bx+c$ funksiyaning grafigi koordinatalar tekisligining qaysi choraklarida joylashadi? 97-02-22

A)I, IV B)I,II va IV C)faqat IV D)III, IV E)I,II

49. m ning qanday qiymatida $y=1$ to'g'ri chiziq $y=x^2-2x+m$ parabolaga urinadi? 98-11-79

A)4 B) 1 C) 3 D)2 E)5

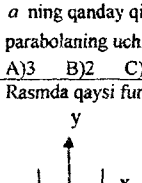
50. A(1; 9) nuqta $y=-x^2+ax+4$ parabola grafigiga tegishli. Parabola uchining ordinatasini toping. 00-02-26

A)13 B)6 C)4 D)2 E)7

51. a ning qanday qiymatlarida $y=x^2-4x+12-a$ parabolaning uchi $M(2;4)$ nuqtada yotadi? 00-07-22

A)3 B)2 C)4 D)5 E)6

52. Rasmda qaysi funksiya grafigi tasvirlangan? 98-08-16



A) $y=x^2+3x$

B) $y=3(x^2+1)$

C) $y=3-3x^2$

D) $y=3(x^2-1)$

E) $y=2x^2-3$

53. $y=-x^2+6x-10$ funksiyaning eng katta qiymatini toping. 2006

A)1 B)–1 C)2 D)0

54. Agar A(1; –3) nuqta $y=x^2+px+q$ parabolaning uchi bo'lsa, p va q ning qiymatini toping. 2006

A) $p=4,\ q=2$ B) $p=2,\ q=-1$

C) $p=1,\ q=-2$ D) $p=q=-2$,

5-§. Parametrli misollar.

1. k ning qanday musbat qiymatida $25x^2+kx+2=0$ tenglama bitta ildizga ega bo'ladi? 99-06-18

A) $10\sqrt{2}$ B)10 C) $5\sqrt{2}$ D)5 E) $3\sqrt{2}$

2. $y^2-2ty+t+2=0$ tenglama faqat bitta ildizga ega bo'ladigan t ning barcha qiymatlari yig'indisini toping. 01-11-11

A)2 B)1,5 C)–1 D)–1,5 E)1

3. m ning $(m-2)x^2-2mx+2m-3=0$ tenglama bitta ildizga ega bo'ladigan qiymatlarning o'rta arifmetigini toping. 03-12-68

A)4 B)5 C)4,5 D)3,5 E)3

4. $9x^2+kx=2x-k+6$ tenglamaning ildizlari biriga teng bo'ladigan k ning barcha qiymatlari ko'paytmasini toping. 03-01-58

A)100 B)–120 C)220 D)–196 E)180

5. m ning qanday qiymatlarida $x^2+(m+2)x+m+5=0$ tenglamaning ildizlari haqiqiy va o'zaro teng bo'ladi? 02-07-01

A) $m=\pm4$ B) $m=\pm3$ C) $m=\pm2$ D) $m=\pm1$

E) $m=\pm5$

6. a ning qanday qiymatlarida $x^2+2(1-a)x+a+5=0$ tenglamaning yechimlari o'zaro teng bo'ladi? 98-11-23

A)–1; 2 B)–1 C)2 D)4 E)–1; 4

7. a ning qanday qiymatlarida $ax^2-2x+3=0$ tenglama bitta ildizga ega bo'ladi? 02-01-50

A) $\frac{1}{3}$ B)0 va 1 C)3 va 1,5 D) $\frac{1}{3}$ va 0 E) $\frac{1}{3}$ va 1

8. a ning qanday qiymatlarida $ax^2-(a+1)x+2a-1=0$ tenglama bitta ildizga ega bo'ladi? 99-04-19

A)–1; $\frac{1}{7}$ B)0; –1 C)1; $-\frac{1}{7}$

D) 1; 0; $-\frac{1}{7}$ E)–1; 0; $\frac{1}{7}$

9. a ning qanday qiymatlarida $a^2x^2-2x+1=0$ tenglama bitta ildizga ega bo'ladi? 96-06-24

A) $a=1$ B) $a=-1$ C) $a=\pm1$

D) $a=0$ va $a=1$ E) $a=\pm1$ va $a=0$

10. k ning qanday qiymatida $x^2-2k(x+1)-k^2=0$ tenglama 0 dan farqli o'zaro teng ildizlarga ega? 01-01-71

A)2 B)–2 C)1 D)–1 E)0,5

11. m ning qanday qiymatida $(m-1)x^2+2mx+3m-2$ kvadrat uchhadni to'la kvadrat shaklida tasvirlash mumkin? 03-03-14

A)2, $\frac{1}{2}$ B)–2 C)2 D) $\frac{1}{2}$ E) $-\frac{1}{2}$

12. k ning qanday qiymatlarida $x^2-2(k-9)x+k^2+3k+4$ ifodani to'la kvadrat shaklida tasvirlab bo'ladi? 00-08-34

A) $\frac{11}{3}$ B)3 C)4 D) $\frac{5}{7}$ E) $\frac{7}{9}$

13. m ning qanday qiymatida
$x(x+a)(x+b)(x+a+b)+4m^2$ ifoda to'la kvadrat bo'ladi?
A) $\frac{a^2b^2}{4}$ B) $\pm\frac{ab}{4}$ C) $\pm\frac{a+b}{4}$ D) $\frac{ab^2}{2}$
E)Bunday qiymat mavjud emas
00-10-49

14. k ning $4y^2-3y+k=0$ tenglama haqiqiy ildizga ega bo'lmaydigan eng kichik butun qiymatini toping.
A)1 B)3 C)4 D)5 E)12
00-08-33

15. p ning nechta natural qiymatida $x^2+px+16=0$ tenglama haqiqiy ildizga ega emas?
A)8 B)14 C)7 D)15 E)9
01-11-10

16. k ning qanday eng katta butun qiymatida
$kz^2+2(k-12)z+2=0$ tenglama yechimga ega bo'lmaydi?
A)16 B)18 C)20 D)17 E)21
99-02-18

17. $x^2+px+q^2=0$ $(q\neq 0)$ tenglama $\frac{p}{q}$ ning qanday qiymatlarida haqiqiy ildizlarga ega emas?
A)[0; 2] B)(0; 2] C)[-2; 2] D)(-2; 0) E)(-2; 2)
00-07-14

18. $kx^2+3kx+2k-1=0$ tenglama yechimga ega bo'lmaydigan k ning butun qiymatlari o'rta arifmetigini toping.
A)-3 B)-2 C)-1,5 D)3 E)1,5
02-09-13

19. a ning qanday qiymatlarida $y=9x^2-12x+35a$ parabola absissalar
o'qi bilan ikkita umumiy nuqtaga ega bo'ladi?
A) $a=\frac{4}{35}$ B) $a<\frac{4}{35}$ C) $a>\frac{4}{35}$
D) $a<\frac{8}{35}$ E) $a>\frac{8}{35}$
99-03-11

20. n ning qanday qiymatlarida $4x^2-3nx+36=0$ tenglama ikkita manfiy ildizga ega bo'ladi?
A) $|n|\geq 8$ B) $n\leq -8$ C) $n<8$ D) $n<-8$ E) $n>8$
99-03-12

21. t ning qanday iqymatlarida $x^2+(t-1)x+0,25=0$ tenglamaning ikkala ildizi ham manfiy bo'ladi?
A) $t<2$ B) $t<1$ C) $t>2$ D) $t\leq 1$ E) $t>3$
00-09-06

22. k ning qanday qiymatlarida $kx^2-(k-7)x+9=0$ tenglama ikkita teng manfiy ildizga ega bo'ladi.
A)49; 1 B)1 C)-49; -1 D)49 E)-1
03-03-15

23. a ning qanday qiymatlarida $x^2+3x+a+0,75=0$ tenglamaning ikkala ildizi ham manfiy bo'ladi.
A) $0,5<a<2$ B) $-0,75<a<1,5$ C) $0.6<a<1,8$
D) $0,8<a<1,2$ E) $0,9<a<1,4$
03-04-12

24. p ning qanday qiymatlarida
$x^2+2(p+1)x+9p-5=0$ tenglamaning ikkala ildizi manfiy va turli bo'ladi?
A) $\left(\frac{5}{9};1\right)\cup(6;\infty)$ B) $\left(\frac{5}{9};6\right)$ C) $\left(\frac{5}{9};\infty\right)$ D)$(6;\infty)$
E) $\left(\frac{5}{9};1\right)$
03-11-02

25. k ning qanday eng kichik butun qiymatida
$x^2-2(k+2)x+6+k^2=0$ tenglama ikkita turli haqiqiy ildizlarga ega?
A)-2 B)-1 C)2 D)1 E)3
03-03-19

26. a ning qanday qiymatlarida
$5(a+5)x^2-10x+a=0$ tenglamaning ildizlari turli ishorali bo'ladi?
A)(-1; 5) B)(-4; 0) C)(-5;0)
D)(-5; -4)$\cup$(0; 1) E)(0; 1)
01-01-15

27. t ning qanday qiymatlarida $y=tx^2-4x+t$ funksiyaning grafigi Ox o'qining yuqori qismida joylashadi?
A) $t\in[0;2)$ B) $t\in(0;2)$ C) $t\in(-2;2)$
D) $t\in[-2;2]$ E) $t\in(2;\infty)$
98-10-14

28. n ning 10 dan oshmaydigan nechta natural qiymatida $nx^2+4x>1-3n$ tengsizlik x ning ixtiyoriy qiymatida o'rinli bo'ladi?
A)10 B)9 C)8 D)7 E)6
01-02-78

29. $y=(a-2)x^2-(a-2)x+6$ va istalgan x haqiqiy son uchun $y>5$ bo'lsa, a soni qaysi oraliqda bo'ladi?
A)(2; 6) B)(1;5) C)[2; 6) D)(0;5) E)Ø
03-05-23

30. t ning qanday qiymatlarida tenglamasi
$y=tx^2+16tx+68t$ bo'lgan parabola Ox o'qidan yuqorida yotmaydi?
A)$(-\infty;0)$ B)(0; 4) C)$(-\infty;-4)$ D)$(-\infty;-4)$
E)(-4; 0)
00-01-09

31. m ning qanday qiymatlarida
$y=(m+4)x^2-2(m+2)x+1$ kvadrat uchhadning grafigi absissalar o'qidan pastda joylashgan bo'ladi?
A) $(-\frac{1}{4};1)$ B)(-2; 1) C)Ø D)$(-\infty;\infty)$
E)$(-\infty;-4)\cup(-4;\infty)$
02-05-12

32. t ning qanday qiymatlarida $tx^2-6x-1<0$ tengsizlik x ning barcha qiymatlarida o'rinli bo'ladi?
A)t<-12 B)t<-9 C)t<-13 D)t<-8 E)t<-7
01-06-12

33. a ning qanday qiymatlarida $ax^2-8x+a<0$ tengsizlik x ning barcha qiymatlarida o'rinli bo'ladi?
A)(0;4) B)(4; 0) C)(-4;4) D)$(-\infty;-4)$ E)$(4;\infty)$
99-09-17

34. k ning qanday qiymatlarida $(k+2)x^2-4x-1$ uchhadning qiymati x ning barcha haqiqiy qiymatlarida noldan kichik bo'ladi? 02-12-28

A) $k<-4$ B) $k<-2$ C) $k<-5$
D) $k<-5,5$ E) $k<-6$

35. k ning $kx^2+4x+k+1>0$ tengsizlik yechimga ega bo'lmaydigan butun qiymatlari orasidan eng kattasini toping. 98-03-13

A)Eng kattasi yo'q
B)Bu munosabat k ning biror qiymatida ham o'rinli emas.
C) -3 D)-2 E)-1

36. $kx^2+2x+k+2>0$ tengsizlik yechimga ega bo'lmaydigan k ning butun qiymatlari orasidan eng kattasini toping. 98-10-61

A)-1 B)-2 C)eng kattasi yo'q D)-4 E)-3

37. $y=kx-7$ to'g'ri chiziq va $y=ax^2-13x+17$ parabola abssissalari 4 va 2 ga teng bo'lgan nuqtalarda kesishadi. $k-a$ ayirmaning qiymatini toping. 02-03-30

A)2 B)-2 C)3 D)-3 E)1

38. m ning qanday qiymatida $y=mx+2$ to'g'ri chiziq va $y=-5x^2$ parabola absissasi $x=-1$ bo'lgan nuqtada kesishadi? 03-07-57

A)3 B)-3 C)-7 D)7 E)5

39. $y=kx^2-2kx+3$ va $y=2-kx$ funksiyalarning grafiklari k ning nechta butun qiymatlarida kesishmaydi? 98-04-45

A)3 B)2 C)cheksiz ko'p D)4 E)5

40. a ning qanday qiymatlarida $y=2ax+1$ va $y=(a-6)x^2-2$ funksiyalarning grafiklari kesishmaydi? 01-12-18

A)(-3; 6) B)$(-\infty;-6)\cup(3;\infty)$ C)Ø D)(-6; 0) E)(-6; 3)

41. $y=(k-2)x^2-3kx+2$ va $y=kx^2+kx+4$ funksiyalarning grafiklari kesishmaydigan k ning barcha butun qiymatlari yig'indisini toping. 98-12-94

A)0 B)1 C)-2 D)3 E)5

42. b ning qanday qiymatida $x^2+\frac{2}{3}x+b$ uchhad to'la kvadrat bo'ladi? 00-08-31

A) $\frac{1}{9}$ B) $\frac{1}{3}$ C) $\frac{2}{9}$ D) $\frac{2}{3}$ E) $\frac{4}{9}$

43. m ning qanday qiymatida $x(x+3a)(x+b)(x+3a+b)+\frac{m^2}{4}$ ifoda to'la kvadrat bo'ladi? 2004

A)to'g'ri javob keltirilmagan B) $\pm\frac{ab}{3}$ C) $4a^2b^2$
D) $\pm 3ab$ E)0

44. m ning qanday qiymatida $x(x+a)(x+2b)(x+a+2b)+m^2$ ifoda to'la kvadrat bo'ladi? 2004

A)to'g'ri javob keltirilmagan B) $\pm\frac{ab}{23}$ C) a^2b^2
D) $\pm ab$ E)Ø

1-§. Yuqori darajali tenglamalar.

1. $x^3+2x^2-9x-18=0$ tenglamaning ildizlari yig'indisini toping. 97-01-12
A)9 B)–2 C)6 D)–18 E)2

2. $x^3-3x^2-4x+12=0$ tenglamaning ildizlari ko'paytmasini toping. 97-06-12
A)6 B)–4 C)12 D)–12 E)24

3. $x^3+5x^2-4x-20=0$ tenglamaning ildizlari ko'paytmasini toping. 97-11-12
A)–10 B)20 C)–4 D)–20 E)16

4. $x^4=3x^2-2x$ tenglamaning eng katta va eng kichik ildizlari yig'indisini toping. 99-02-15
A)3 B)–3 C)1 D)–1 E)3

5. $x^3+3x^2-4x-12=0$ tenglama ildizlarining yig'indisini toping. 00-08-12
A)–3 B)–7 C)4 D)12 E)0

6. $x^3-3x^2-2x+6=0$ tenglamaning ildizlari ko'paytmasini toping. 02-11-22
A)3 B)–6 C)6 D)–3 E)1

7. $x^3-5x^2-2x+10=0$ tenglama ildizlarining ko'paytmasini toping. 03-03-21
A)10 B)–10 C)20 D)5 E)–5

8. $x^3+2x^2=x+2$ tenglama ildizlari yig'indisini toping. 03-06-39
A)–3 B)–2 C)–1 D)1 E)2

9. $(4x^2-7x-5)(5x^2+13x+3)(3x-x^2-8)=0$ tenglamaning barcha haqiqiy ildizlari ko'paytmasini toping. 03-10-27
A)1 B)0 C)0,75 D)–0,75 E)1,25

10. $x^3-7x+6=0$ tenglamaning barcha haqiqiy ildizlari o'rta geometrigini toping. 02-11-24
A)$\sqrt{6}$ B)$\sqrt[3]{6}$ C)$-\sqrt[3]{6}$ D)$2\sqrt{2}$ E)–2

11. $x^3-13x+12=0$ tenglama haqiqiy ildizlarining o'rta arifmetigini toping. 03-05-22
A)$2\frac{2}{3}$ B)$1\frac{1}{3}$ C)0 D)$-\frac{1}{2}$ E)$-1\frac{1}{3}$

12. $1-3x+9x^2-\ldots-3^9x^9=0$ tenglamani yeching. 97-09-95
A)$\pm\frac{1}{3}$ B)$\frac{1}{3}$ C)$-\frac{1}{3}$ D)$\frac{1}{5}$ E)$\frac{3}{4}$

13. $1-x+x^2-x^3+\ldots+x^8-x^9=0$ tenglamani yeching. 97-04-35
A)10 B)1 C)–1; 1 D)–1 E)–1; 10

14. $xy^2-xy-y^2+y=94$ tenglamani natural yechimlari juftini toping 02-06-04
A)(48; 2) B)(48; 3) C)(49; 1) D)(49; 2) E)(48; 1)

15. $x^3-px^2-qx+4=0$ tenglamaning ildizlaridan biri 1 ga teng. Shu tenglamaning barcha koeffisientlari yig'indisini toping. 99-10-06
A)–1 B)0 C)1 D)1,5 E)2

16. 2 va –3 sonlari x^3+mx+n ko'phadning ildizlari. Bu ko'phadning uchinchi ildizi topilsin. 02-07-08
A)1 B)4 C)–1 D)–2 E)3

17. $x^4-13x^2+36=0$ tenglamaning ildizlari yig'indisini toping. 96-07-15
A)13 B)5 C)0 D)36 E)1

18. $x^4-17x^2+16=0$ tenglamaning ildizlari yig'indisini toping. 97-03-15
A)17 B)0 C)–16 D)–17 E)4

19. $x^4-10x^2+9=0$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping. 97-07-15
A)1 B)8 C)2 D)4 E)6

20. $x^4-13x^2+36=0$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping. 97-10-15
A)5 B)1 C)7 D)0 E)6

21. $5x^4-8x^2+1=0$ tenglamaning barcha ildizlari yig'indisini toping. 98-12-89
A)1,6 B)0 C)8 D)$\frac{1}{5}$ E)aniqlab bo'lmaydi

22. $x^4-(\sqrt{5}+\sqrt{3})x^2+\sqrt{15}=0$ tenglamaning ildizlari sonini toping. 02-04-64
A)2 B)4 C)1 D)0 E)3

23. $13x^4-5x^2-17=0$ tenglamaning barcha ildizlari yig'indisining barcha ildizlari ko'paytmasiga nisbatini toping. 03-10-29
A)1 B)0 C)$\frac{3}{2}$ D)$\frac{2}{3}$ E)aniqlab bo'lmaydi.

24. $3x^4-5x^2+2=0$ tenglamaning eng kichik va eng katta ildizlari ayirmasini toping. 03-12-02
A)2 B)$\frac{2\sqrt{6}}{3}$ C)$-\frac{2\sqrt{6}}{3}$ D)–2 E)$\frac{5}{3}$

25. $x^4-7a^2x^2-9a^4=0 (a\neq 0)$ tenglamaning haqiqiy ildizlari nechta? 05-12-04
A)a ga bog'liq B)ildizlari yo'q C)1 ta D)2 ta E)4 ta

26. $x^6-65x^3=64$ tenglama haqiqiy ildizlarining yig'indisini toping. 00-08-07
A)5 B)65 C)64 D)16 E)–5

27. $x^6 - 9x^3 + 8 = 0$ tenglamaning haqiqiy ildizlari yig'indisini toping. 02-07-10
A)3 B)9 C)–9 D)8 E)4

28. $x^8 = \frac{5x^4+1}{3}$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping. 03-10-62
A)0 B)1 C)2 D)2,5 E)aniqlab bo'lmaydi.

29. $(x^2+5x+4)(x^2+5x+6) = 120$ teglamaning haqiqiy ildizlari yig'indisini toping. 00-03-26
A)3 B)–3 C)2 D)–5 E)–4

30. $(x^2+1)^4 - 3(x^2+1)^2 - 4 = 0$ tenglamaning nechta ildizi bor? 01-06-14
A)6 B)4 C)3 D)2 E)5

31. $(x^2+x+1)(x^2+x+2) = 12$ tenglamaning haqiqiy ildizlari ko'paytmasini toping. 03-01-69
A)–12 B)6 C)–2 D)8 E)2

32. $(x^2+x-4)(x^2+x+4) = 9$ tenglama ildizlarining ko'paytmasini toping. 03-09-08
A)16 B)4 C)–4 D)5 E)–5

33. $(x+1)(x+2)(x+4)(x+5) = 40$ $(x \in R)$ tenglamaning ildizlari yig'indisini toping. 02-07-41
A)–6 B)0 C)–5 D)6 E)7

34. $2x^4 - 7x^2 + 2 = 0$ tenglamaning ildizlari yig'indisini toping. 98-04-33
A)7 B)3,5 C)0 D)2 E)aniqlab bo'lmaydi

35. $y^4 - 2y^2 - 8 = 0$ tenglamaning haqiqiy ildizlari ko'paytmasini aniqlang. 98-11-10
A)4 B)–16 C)16 D)–4 E)64

36. $(2x-1)(5x-2)^2 = 100(x^2-0{,}16)(x-0{,}5)$ tenglamaning ildizlari yig'indisini toping. 02-09-22
A)0,5 B)–1,2 C)–0,3 D)2,1 E)0,9

37. $x^3 - 2x^2 - 3 = x - 5$ tenglamaning ildizlari yig'indisini toping. 2004
A)–3 B)–2 C)–1 D)1 E)2

38. $x^3 + 3x^2 - 4 = 2x + 2$ tenglamaning ildizlari ko'paytmasini toping. 2004
A)6 B)–4 C)12 D)–12 E)24

39. $x^3 - 6x^2 + 12 = 3x^2 + 2x - 6$ tenglamaning ildizlari yig'indisini toping. 2004
A)9 B)–2 C)6 D)–18 E)2

40. $x^3 - 6x^2 + 12 = 3x^2 + 2x - 6$ tenglamaning ildizlari ko'paytmasini toping. 2004
A)–10 B)20 C)–18 D)–20 E)16

2-§. Ratsional tenglamalar.

1 $3 - x = -\frac{4}{x}$ tenglamaning nechta ildizi bor? 96-01-18
A)1 B)2 C)3 D)ildizi yo'q E)cheksiz ko'p

2. $\frac{2}{x} = x + 2$ tenglamaning nechta ildizi bor? 96-09-69
A)3 B)2 C)1 D)ildizi yo'q E)cheksiz ko'p

3. $x + 6 = -\frac{3}{x}$ tenglamaning nechta ildizi bor? 96-10-19
A)1 B)2 C)3 D)ildizi yo'q E)cheksiz ko'p

4. $b^{-1}x^2 = 2x - b$ tenglik x ning qanday qiymatlarida to'g'ri bo'ladi? 98-11-70
A) b B) $\frac{b}{2}$ C) $-b$ D) $\frac{b}{2}; -b$ E)1

5. $x - 6 = \frac{13}{x}$ tenglamani nechta haqiqiy ildizi bor? 01-03-31
A)1 B)2 C)3 D)ildizi yo'q E)cheksiz ko'p

6. $\frac{2x^2-5x+3}{(10x-5)(x-1)} = 0$ tenglamani yeching. 98-06-22
A)1 B)1; $\frac{3}{2}$ C) $\frac{3}{2}$ D)5 E) $\frac{1}{2}$

7. b ning qanday qiymatida $\frac{7b^3}{b^3+1}$ kasrning qiymati $\frac{56}{9}$ ga teng bo'ladi? 98-07-19
A)–2 B)2 C)4 D)10 E) $\frac{1}{2}$

8. $\frac{1-\frac{1}{x-1}}{1+\frac{1}{x-1}} = 0$ tenglamani yeching. 98-11-71
A)–2 B)0 C)–1 D)1 E)2

9. a ning qanday qiymatida $\frac{a^3}{a^2-1}$ kasrning qiymati $\frac{27}{8}$ ga teng bo'ladi? 98-12-18
A)3 B)2 C)27 D)8 E)9

10. $\frac{2}{3-x} + \frac{1}{2} = \frac{6}{x(3-x)}$ tenglama ildizlarining yig'indisini toping. 98-12-63
A)4 B)7 C)3 D)10 E)0

11 $\frac{x^2+16}{x} = 10$ tenglama ildizlarining o'rta arifmetigi ularning ko'paytmasidan qanchaga kam? 99-10-05
A)13 B)12 C)14 D)11 E)10

12 $\frac{x^2-x-2}{x^2+x} = 0$ tenglamaning ildizlari nechta? 00-05-36
A)2 B)4 C)1 D)3 E)Ø

13 $\frac{2}{x-3} = \frac{x+5}{x^2-9}$ tenglamani yeching. 01-01-08
A)–2 B)2 C)1 D)–1 E)1,5

14. $\frac{x+8}{3} = x - \frac{x-3}{x}$ tenglama ildizlari ayirmasining modulini toping. 03-07-56
A)5,5 B)5 C)3,5 D)4 E)2,5

15. $\frac{x^2+1}{x} + \frac{x}{x^2+1} = -2,5$ tenglamaning ildizlari quyidagi oraliqlarning qaysi birida joylashgan? 98-11-16
A)$(-\infty, -1)$ B)$[-1; 8)$ C)$[2; 8)$ D)$[3; 8)$ E)$(4; 8)$

16. $\frac{26}{5\left(x+x^{-1}\right)} = 1$ tenglama ildizlarining ko'paytmasini toping. 03-03-25
A)1 B)5 C)2 D)2,4 E)4,8

17. $\left(x+\frac{1}{x}\right)^2 - 4,5\left(x+\frac{1}{x}\right) + 5 = 0$ tenglamaning ildizlari ko'paytmasini toping. 02-12-10
A)4 B)2 C)1 D)–1 E)–2

18. $(x+\frac{1}{x})^2 - 2(x+\frac{1}{x}) - 3 = 0$ tenglama ildizlarining ko'paytmasini toping. 98-06-20
A)3 B)–1 C)4 D)$\sqrt{2}$ E)1

19. $\left(x^2+\frac{1}{x^2}\right) - 4\left(x+\frac{1}{x}\right) + 5 = 0$ tenglamaning yechimlari ko'paytmasini toping. 01-03-02
A)3 B)$2\sqrt{3}$ C)6 D)$-2\sqrt{3}$ E)1

20. $\frac{1}{x^2-3x-3} + \frac{5}{x^2-3x+1} = 2$ tenglamaning ildizlari yig'indisini toping. 02-10-45
A)6 B)5 C)4 D)3 E)2

21. $x^2+3x+\frac{6}{2-3x-x^2} = 1$ tenglama butun ildizlarining yig'indisini toping. 03-08-42
A)–3 B)1 C)–5 D)3 E)4

22. $\frac{3x^2+8x-3}{x+3} = x^2-x+2$ tenglamaning ildizlari yig'indisini toping. 02-11-20
A)–8 B)–6 C)–4 D)4 E)6

23. $\frac{3x^2+4x-4}{x+2} = x^2-4x+4$ tenglama ildizlarining yig'indisini toping. 03-08-17
A)10 B)–5 C)–4 D)8 E)7

24. $\frac{x^3-8}{x-2} = 6x+1$ tenglamaning ildizlari yig'indisini toping. 03-11-65
A)6 B)4 C)–4 D)3 E)–2

25. $x+\frac{1}{y+\frac{1}{z}} = \frac{10}{7}$ tenglamaning natural sonlardagi yechimida z nimaga teng? 97-05-15
A)3 B)4 C)1 D)2 E)7

26. $x+\frac{1}{y+\frac{1}{z}} = \frac{17}{15}$ tenglamaning natural sonlardagi yechimida y nimaga teng? 97-09-15
A)4 B)3 C)2 D)7 E)6

27. Agar $x^2+\left(\frac{x}{x-1}\right)^2 = 8$ bo'lsa, $\frac{x^2}{x-1}$ ifodaning katta qiymatini toping. 99-08-29
A)4 B)8 C)2 D)16 E)$\frac{1}{4}$

28. a ning nechta qiymatida $\frac{3x-a}{3-x} + \frac{x+a}{x+1} = 2$ tenglama bitta yechimga ega? 01-08-22
A)4 B)3 C)2 D)1 E)0

29. $\frac{3+25x}{3x+7} = 5$ tenglamani yeching. 03-07-44
A)–3,2 B)1,5 C)$-1\frac{1}{5}$ D)3,2 E)–3

30. $3-x=\frac{2}{x}$ tenglamaning nechta haqiqiy ildizi bor? 2006
A)2 B)1 C)ildizi yo'q D)3

3-§. Irratsional tenglamalar.

1. $\frac{4}{x+3} + \frac{7}{\sqrt{x+3}} = \frac{1}{x^2+5x+6}$ tenglamada x ning qabul qilishi mumkin bo'lgan qiymatlar to'plamini ko'rsating. 98-12-20
A)$(-3; -2)\cup(-2; \infty)$ B)$(-3; -2)$ C)$(-2; \infty)$ D)$(-\infty; -2)$ E)$(-3; -2)\cup(-2; \infty)$

2. $\sqrt{2-x^2}\cdot\sqrt{x^2-4} = 0$ tenglamaning ildizlari sonini toping. 02-04-69
A)0 B)1 C)2 D)3 E)4

3. $\sqrt{x^2-4x-21} + \sqrt{10+3x-x^2} = 2$ tenglamani yeching. 01-12-45
A)1; 3 B)–2; 4 C)0 D)–3; 4 E)2

4. $(16-x^2)\sqrt{3-x} = 0$ tenglamaning ildizlari yig'indisini toping. 00-04-34
A)7 B)3 C)0 D)–2 E)–1

5. $(x^2-9)\sqrt{x+1} = 0$ tenglamani yeching. 00-08-05
A)–1; 3 B)±3 C)±3; 1 D)2 E)–3

6. $(x^2-4)\sqrt{x+1} = 0$ tenglamaning ildizlari yig'indisini hisoblang. 01-05-09
A)1 B)–1 C)3 D)2 E)0

7. $(4-x^2)\sqrt{-1-3x} = 0$ tenglama ildizlarining yig'indisini toping. 05-05-23
A)$-\frac{1}{3}$ B)$\frac{1}{3}$ C)$-\frac{7}{3}$ D)$\frac{7}{3}$ E)$\frac{5}{3}$

8. $(x^2-25)\sqrt{6-2x}=0$ tenglama ildizlari yig'indisini toping. 03-09-10
A)2 B)–2 C)3 D)8 E)–8

9. $(x^2-25)(x-3)(x-6)\sqrt{4-x}=0$ tenglama ildizlarining o'rta arifmetigini toping. 99-09-11
A)$4\frac{1}{3}$ B)$1\frac{1}{3}$ C)$\frac{2}{3}$ D)$4\frac{1}{2}$ E)2

10. $\sqrt{-x}\sqrt{x^4-13x^2+36}=0$ tenglamaning ildiziari yig'indisini toping. 02-04-10
A)5 B)–5 C)6 D)–6 E)4

11. $\sqrt{x+2}+x=0$ tenglamani yeching. 97-01-72
A)–1 B)–2 C)2 D)0 E)to'g'ri javob berilmagan

12. $\sqrt{3x-7}-\sqrt{7-3x}=0$ tenglamani yeching 01-12-43
A)2,3 B)$\frac{3}{7}$ C)$\frac{7}{3}$ D)Ø E)0,43

13. $3\sqrt{2x}-5\sqrt{8x}+7\sqrt{18x}=28$ tenglamani yeching. 00-03-10
A)1 B)2 C)3 D)4 E)6

14. $\frac{2\sqrt{x}-\sqrt{2x}}{\sqrt{2}}+3=\sqrt{x}+1$ tenglamani yeching. 00-04-07
A)8 B)4 C)9 D)1 E)16

15. $\sqrt{5-4x}+5=4x$ tenglamani yeching. 02-04-08
A)$\frac{4}{5}$ B)$\frac{5}{4}$ C)$\frac{4}{5}$ va $\frac{5}{4}$ D)$-\frac{4}{5}$ E)$-\frac{5}{4}$

16. $6+\sqrt{x^2-3x+6}=2x$ tenglama ildizlarining yig'indisini toping. 02-08-14
A)5 B)6 C)7 D)4 E)8

17. Agar $x-\sqrt{x+3}-17=0$ bo'lsa, $\sqrt{x+3}$ ning qiymatini hisoblang. 03-04-15
A)3 B)4 C)5 D)7 E)8

18. $\frac{\sqrt{2-x}}{\sqrt{3+x}}=\frac{2-x}{3+x}$ tenglama ildizlarining o'rta arifmetigini toping. 03-11-76
A)1 B)0,75 C)1,5 D)$\frac{1}{3}$ E) –1

19. Agar $x^4-9x^2=-4x$ tenglamaning katta ildizi x_0 bo'lsa, x_0+10 nechaga teng? 98-02-21
A)10 B)12 C)20 D)15 E)18

20. $\sqrt{x^4+5x^2}=-3x$ tenglamaning ildizlari yig'indisini toping. 98-09-19
A)0 B)–2 C)–4 D)2 E)4

21. $\sqrt{x^3-2x^2-4x}=x$ tenglamaning ildizlari yig'indisi 10 dan qancha kam? 99-10-21
A)4 B)7 C)5 D)6 E)8

22. $\sqrt{x^2-x-2}=x-3$ tenglamani yeching. 00-05-29
A)5 B)tenglama cheksiz ko'p yechimga ega C)4 D)Ø E)2,2

23. Agar $\sqrt{3x^2-6x+16}=2x-1$ bo'lsa, $x^2(x+2)$ ning qiymatini toping. 00-06-33
A)–75 B)–45 C)15 D)45 E)75

24. Agar $\sqrt{x+1}+x-11=0$ bo'lsa, $x+12$ ning qiymatini toping. 01-06-25
A)15 B)16 C)20 D)19 E)18

25. $\sqrt{x^4+x^2+8x}-x=4$ tenglamani yeching. 03-03-13
A)±4 B)4 C)±2 D)2 E)–2

26. $\sqrt{2x^2+17}=x^2+1$ tenglamaning haqiqiy ildizlari ko'paytmasini toping. 03-06-47
A)16 B)4 C)–4 D)8 E)–16

27. $\sqrt{6+x}-\sqrt{8-x}=0$ tenglamaning ildizi 12 dan qancha kam? 02-12-36
A)10 B)8 C)9 D)13 E)11

28. $\sqrt{x-5}+3\sqrt{x+3}=10$ tenglamaning nechta ildizi bor? 02-12-46
A)4 B)3 C)2 D)1 E)Ø

29. $\sqrt{x-2}+\sqrt{1-x}=2$ tenglamani yeching. 97-10-15
A)Ø B)2 C)1,2 D)0,4 E)0,9

30. $\sqrt{x^2+1}-\sqrt{x^2-1}=1$ tenglama nechta haqiqiy ildizga ega? 02-01-08
A)Ø B)1 C)2 D)3 E)cheksiz ko'p

31. Agar $2\sqrt{3x+2}-\sqrt{6x}=2$ bo'lsa, $x+4\frac{1}{3}$ nimaga teng. 02-02-18
A)5 B)6 C)4 D)$5\frac{2}{3}$ E)$4\frac{2}{3}$

32. $\sqrt{\sqrt{11x^2+1}-2x}=1-x$ tenglamaning turli ildizlari sonini aniqlang. 02-11-25
A)1 B)2 C)3 D)4 E)0

33. $\sqrt{x+1}+\sqrt{2x+3}=1$ tenglamani yeching. 99-08-03
A)–1 B)3 C)–1; 3 D)1 E)–3

34. $\sqrt{x+1}+\sqrt{2x+3}=1$ tenglama ildizlarining yig'indisini toping. 00-03-22
A)2 B)3 C)4 D)–2 E)–1

35. Agar $\sqrt{x-3}-\sqrt{x+1}+2=0$ bo'lsa, x^3-2x+1 ifodaning qiymatini toping 01-01-18
A)24 B)22 C)–1 D)18 E)21

36. Agar $\sqrt{x+3-\sqrt{x+14}}+\sqrt{x+3+\sqrt{x+14}}=4$ bo'lsa, $-\frac{x}{x+1}$ ning qiymatini hisoblang. 02-05-14
A)$\frac{2}{3}$ B)$-\frac{2}{3}$ C)3 D)$\frac{3}{2}$ E)$-\frac{3}{2}$

37. Agar $\sqrt{x+3+\sqrt{x+14}}+\sqrt{x+3-\sqrt{x+14}}=4$ bo'lsa, $x(x+1)^{-1}$ ifodaning qiymatini toping. 03-03-29
A) $\frac{3}{2}$ B) $-\frac{3}{2}$ C)3 D) $\frac{2}{3}$ E) $-\frac{2}{3}$

38. Agar $\sqrt[5]{25+\sqrt{x+13}}-2=0$ bo'lsa, $\sqrt{x}+\frac{x}{3}$ ning qiymatini toping. 99-03-14
A)18 B)20 C)$10\sqrt{2}$ D)$14\sqrt{2}$ E)$15\sqrt{2}$

39. $\sqrt[3]{x^3+19}=x+1$ tenglama katta ildizining kichik ildiziga nisbatini toping. 00-07-16
A) $\frac{1}{2}$ B) $-\frac{2}{3}$ C) $\frac{2}{3}$ D) $-\frac{1}{2}$ E) $-\frac{3}{4}$

40. Agar $\sqrt[3]{1+\sqrt{x-1}}+\sqrt[3]{1-\sqrt{x-1}}=2$ bo'lsa, $\frac{x}{x+2}$ ning qiymatini toping. 03-09-14
A) $\frac{2}{3}$ B) $-\frac{2}{3}$ C) $\frac{1}{3}$ D) $-\frac{1}{3}$ E) $\frac{3}{5}$

41. $\sqrt{1-x}-\sqrt{5+2\sqrt{1-x}+1}=0$ tenglama ildizlarining kvadratlarini toping. 00-10-14
A)1; 4 B)4 C)9 D)45; 9 E)1; 9

42. Agar m va n natural sonlar $\sqrt{2(n-5)+n^2-6mn+5m}=0$ tenglikni qanoatlantirsa, $n-m$ ni toping. 98-06-11
A)2 B)5 C)6 D)3 E)4

43. Agar $\sqrt[4]{ab}=2\sqrt{3}$ va $a,b\in N$ bo'lsa, $a-b$ quyida keltirilgan qiymatlardan qaysi birini qabul qila olmaydi? 00-09-31
A)–32 B)10 C)0 D)70 E)25

44. Agar $\sqrt{1-\frac{1}{x}}=\frac{x-1}{x}-6$ bo'lsa, $6\frac{1}{8}+x$ ning qiymatini hisoblang. 00-01-19
A)–7 B)6 C)7 D)–6 E)8

45. $x-5\sqrt{x+4}=0$ tenglama ildizlarining o'rta arifmetigini toping. 01-02-24
A)16 B)8,5 C)3 D)2 E)5

46. $x+\sqrt[4]{x}=12$ tenglamani yeching. 01-04-26
A)80 B)81 C)82 D)8 E)16

47. $3\cdot\sqrt{\frac{x}{x-1}}-2,5=3\cdot\sqrt{1-\frac{1}{x}}$ tenglamani yeching. 03-03-27
A) $\frac{2}{5}$ B) $-\frac{2}{5}$ C)3 D) $\frac{9}{5}$ E)2

48. $\sqrt{x^2+77}-2\sqrt[4]{x^2+77}-3=0$ tenglama ildizlarining ko'paytmasini toping. 98-09-12
A)–3 B)3 C)4 D)–4 E)–6

49. Agar $\sqrt[4]{x}-4\sqrt[8]{x}=5$ bo'lsa, $\frac{100}{\sqrt{x}}$ ning qiymatini toping. 03-12-17
A)0,4 B)0,24 C)0,16 D)0,25 E)0,36

50. $\sqrt{x^2-3x+5}+x^2=3x+7$ tenglamaning ildizlari yig'indisini toping. 99-02-19
A)4 B)–3 C)3 D)–4 E)–5

51. $x^2+5x+\sqrt{x^2+5x-5}=17$ tenglamaning ildizlari yig'indisini toping. 01-01-17
A)6 B)3 C)–5 D)–3 E)5

52. $x^2+5x+\sqrt{x^2+5x-5}=17$ tenglamaning ildizlari ko'paytmasini toping. 01-07-21
A)5 B)–5 C)8 D)–8 E)–14

53. Agar $a^3+5\sqrt{a^3+1}-13=0$ bo'lsa, $\sqrt{a^3+13}$ ning qiymatini aniqlang. 02-03-19
A)4 B)5 C)3 D)6 E)$\sqrt{28}$

54. $\sqrt{x+4\sqrt{x+1}+5}+\sqrt{18+6\sqrt{9-x}-x}=9$ tenglamaning ildizlari yig'indisini toping. 99-05-18
A)Ø B)4 C)2 D)8 E)9

55. tenglamaning nechta ildizi bor? 00-04-35
A)Ø B)1 C)2 D)3 E)4

56. $\sqrt{x^2+10+6\sqrt{1+x^2}}+\sqrt{2+x^2-2\sqrt{x^2+1}}=4$ tenglamaning ildizlari ko'paytmasini toping. 00-09-27
A)0 B)3 C)4 D)–2 E)–3

57. $\sqrt{x+2\sqrt{x-1}}-\sqrt{x-2\sqrt{x-1}}=2$ tenglamani yeching. 02-06-24
A)1 B)2 C)$[1;\infty)$ D)$[2;\infty)$ E)$[1;2]$

58. $\frac{x-9}{\sqrt{x+3}}=x-15$ tenglama nechta ildizga ega? 01-10-20
A)Ø B)1 C)2 D)3 E)4

59. $(x-2)\sqrt{x^2-x-20}+12-6x=0$ tenglamaning haqiqiy ildizlari yig'indisini toping. 02-06-22
A)4 B)8 C)3 D)10 E)1

60. $\sqrt{4x^2+9x+5}-\sqrt{2x^2+x-1}=\sqrt{x^2-1}$ tenglamani yeching. 02-10-52
A)–1; 5 B)$-1\frac{2}{7}$; –1; 5 C)1; 5 D)1; 0 E)–5; 1

61. Agar m va n natural sonlar $2(n-5)+n^2-6mn+17,5m=0$ tenglikni qanoatlantirsa, $n-m$ ni toping. 2004
A)2 B)5 C)6 D)3 E)4

62. Agar a, $b\in N$ va $(ab)^{\frac{1}{2}}=10$ bo'lsa, $a+b$ ning qiymati quyidagilardan qaysi biriga teng bo'la olmaydi? 02-05-23
A)29 B)101 C)52 D)50 E)25

63. $\sqrt{3+2x}=-x$ tenglik x ning qanday qiymatlarida o'rinli? 97-07-61
A)-1 B)1 C)-3 D)hech qanday qiymatida E)3

64. $\sqrt{x}+\sqrt[4]{x}-12=0$ tenglamani yeching. 03-08-38
A)81 B)16 C)25 D)9 E)256

4-§. Modulli tenglamalar.

1. $|b|:(-0,5)=-2,5$ tenglamani qanoatlantiradigan b ning barcha qiymatlarini toping. 96-01-11
A)0,5 B)5 va -5 C)$\frac{5}{4}$ va $-\frac{5}{4}$ D) 5 E)Ø

2. $-4,8:|a|=-0,5$ tenglikni qanoatlantiruvchi a ning barcha qiymatlarini toping. 96-09-61
A)2,4 B)2,4 va -2,4 C)9,6 va -9,6 D)9,6 E)Ø

3. $|m|\cdot(-0,6)=-5,4$ tenglama qanoatlantiradigan m ning barcha qiymatlarini toping. 96-10-11
A)9 B)9 va -9 C)0,9 va -0,9 D)Ø E)3,24

4. $\left|x^2+5x\right|=6$ tenglama ildizlarining yig'indisini toping. 99-06-47
A)10 B)-6 C)-3 D)-10 E)1

5. $|x-1|\cdot|x+2|=4$ tenglamaning butun sonlardan iborat ildizi nechta? 02-12-11
A)2 B)3 C)4 D)1 E)0

6. $\left|(x-6)^3+28\right|=36$ tenglamaning ildizlari yig'indisini toping. 03-03-18
A)-2 B)6 C)-6 D)10 E)-10

7. $2-3|x-5|=-4$ tenglamaning ildizlari yig'indisini toping. 03-04-13
A)8 B)7 C)9 D)6 E)10

8. $\left|x^2-5x\right|=6$ tenglama ildizlarining yig'indisini toping. 03-06-48
A)5 B)-6 C)10 D)-5 E)-10

9. $\left|\sqrt{x+2}-5\right|=4$ tenglama ildizlari yig'indisini toping. 03-09-13
A)76 B)78 C)79 D)81 E)83

10. $\left||1-|1-x|\right|=0,5$ tenglamaning ildizlari yig'indisini toping. 00-06-12
A)0 B)4 C)3 D)1 E)2,5

11. $|3-|2+x||=1$ tenglamaning ildizlari ko'paytmasini toping. 01-09-13
A)24 B)48 C)-12 D)-6 E)0

12. $|3x-1|=|5-x|$ tenglamaning ildizlari ko'paytmasini toping. 03-11-20
A)-3 B)1,5 C)3 D)2 E)-2

13. $|2-3x|-|5-2x|=0$ tenglamani yeching. 99-06-48
A)-3; $\frac{7}{5}$ B)3; $\frac{7}{5}$ C)3; -1 D)-3; 0 E)-1; -3

14. $|x+1|=|2x-1|$ tenglamaning nechta ildizi bor? 97-01-75
A)4 B)3 C)2 D)1 E)Ø

15. $|x|=|2x-5|$ *tenglamaning nechta ildizi* bor? 97-06-71
A)1 B)2 C)3 D)cheksiz ko'p E)ildizi yo'q

16. x ning qanday qiymatlarida $|x^{13}|=|x|^{13}$ tenglik o'rinli bo'ladi? 00-04-10
A) $x>0$ B)0 C) $x<0$ D) $x\in R$ E)Ø

17. $\sqrt{x^2-4x+4}=\sqrt{x^2-10x+25}$ tenglamanin g ildizlari qaysi oraliqqa tegishli? 02-02-17
A) $2<x<5$ B) $x\le 2$ C) $x\ge 5$
D) $x\le -2$ E) $-5<x<-2$

18. $|x-2|=3|3-x|$ tenglamani yeching. 02-10-10
A)2,75; 3,5 B)2,75 C)2 D)2,5 E)3,75

19. $|x+1|=2|x-2|$ tenglamaning ildizlari yig'indisini toping. 02-11-26
A)7 B)5 C)4 D)0 E)6

20. m ning qanday qiymatlarida $|m+1|=m+1$ tenglik o'rinli bo'ladi? 98-01-08
A) $m=-1$ B) $m\in R$ C) $m=0$
D) $m>-1$ E) $m\ge -1$

21. $\left|x^2-8x+7\right|=-7+8x-x^2$ tenglamaning barcha natural yechimlari yig'indisini toping. 98-04-24
A)8 B)40 C)25 D)28 E)aniqlab bo'lmaydi.

22. $|2x-3|=3-2x$ tenglamani yeching. 00-05-22
A) $\frac{3}{2}$ B) $(-\infty;\frac{3}{2}]$ C) $(-\infty;\frac{3}{2})$ D) $(-\infty;\infty)$
E) $(0;\frac{3}{2}]$

23. a ning qanday qiymatlarida $a^2+1=2|a|$ tenglik o'rinli bo'ladi? 97-04-13
A) $a\ge 0$ B) $a\le 0$ C) $a\in(-\infty;\infty)$
D) $a=\pm 1$ E) $a=1$

24. $x^2+|x|-2=0$ tenglamaning nechta ildizi bor? 98-03-19
A)0 B)1 C)2 D)3 E)4

25. $(2x-1)^2=|x|$ tenglamaning barcha ildizlari ko'paytmasini toping. 02-05-09
A) $\frac{1}{16}$ B) $-\frac{1}{16}$ C) $\frac{1}{4}$ D) $-\frac{1}{4}$ E)1

26. $x^2+|x|=\frac{7}{4}$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping. 02-11-21
A) $\sqrt{2}$ B) $2\sqrt{2}-1$ C) $2\sqrt{2}$ D) 2 E) $\sqrt{2}-1$

27. $(x+2)^2-2|x+2|-3=0$ tenglama ildizlarining yig'indisi nechaga teng? 03-05-19
A) –4 B) 6 C) –6 D) 4 E) –5

28. $\frac{(2|x|-3)^2-|x|-6}{4x+1}=0$ tenglama ildizlarining ko'paytmasini toping. 03-11-68
A) $\frac{3}{4}$ B) $-\frac{5}{4}$ C) $-\frac{9}{4}$ D) $-\frac{9}{16}$ E) $\frac{9}{16}$

29. $|x-1|^2-8=2|x-1|$ tenglama ildizlarining ko'paytmasini toping. 98-12-97
A) 15 B) –3 C) 5 D) –8 E) –15

30. $(x-2)^2-4|x-2|+3=0$ tenglamaning ildizlari ko'paytmasini toping. 99-02-14
A) 3 B) 15 C) –3 D) –15 E) –9

31. $|z|z^4-27|z^2|=0$ tenglamani yeching. 98-02-15
A) 0; 3 B) 3; –3 C) 0; ±9 D) –3; 0; 3 E) ±9

32. $\left(\frac{y}{6}+\frac{y}{3}+\frac{y}{2}\right)(y^2-3|y|+2)=0$ tenglamaning manfiy ildizlari nechta? 99-10-09
A) 1 B) 2 C) 3 D) 4 E) 5

33. a ning qanday qiymatlarida $a^2|a|-a^2+2|a|-1=2a^2-|a|$ tenglik o'rinli bo'ladi? 97-09-73
A) 1 B) –1 C) 3 D) –1; 3 E) –1; 1

34. $\sqrt{a^2(3-a)}$ va $a\sqrt{3-a}$ ifodalar qaysi oraliqda aynan teng bo'ladi? 99-09-25
A) $[0;\infty)$ B) $[3;\infty)$ C) $(0;3)$ D) $[0;3]$ E) $[0;3)$

35. $\sqrt{(2x-1)^2(3-x)}=(2x-1)\sqrt{3-x}$ tenglik, x ning qanday qiymatlarida to'g'ri bo'ladi? 00-02-19
A) $[0,5;3]$ B) $[0;3]$ C) $[1;3]$ D) $(-\infty;0,5]$ E) $(-\infty;3]$

36. $\sqrt{(2x-1)^2(3-x)}=(1-2x)\sqrt{3-x}$ tenglik x ning qanday qiymatlarida to'g'ri bo'ladi? 02-02-03
A) $x\le 0,5$ B) $0,5\le x\le 3$ C) $x\le 3$
D) $-3\le x\le 3$ E) $x\ge 0$

37. $ax^2=|a|$ tenglamaning yagona yechimga ega bo'ladigan a ning barcha qiymatlarini toping. 97-04-22
A) $a<0$ B) $a>0$ C) $a=0$ D) $a\ge 0$ E) Ø

38. $-ax=|a|$ tenglama yagona musbat yechimga ega bo'ladigan a ning barcha qiymatlarini toping 97-09-82
A) $a\ne 0$ B) $a>0$ C) $a\le 0$ D) $a\ge 0$ E) $a<0$

39. $2\cdot|x|=\frac{1}{2}x-1$ tenglamani yeching 01-09-42
A) 1 B) $\frac{2}{5}$ C) $-\frac{2}{3}$ D) –1 E) Ø

40. Agar $|x-2|+3x=-6$ bo'lsa, $|x|$ ni toping. 02-02-16
A) 4 B) 3 C) 2 D) 6 E) 8

41. $|5-x|=2(2x-5)$ bo'lsa, $5+x$ ning qiymati nechaga teng? 02-06-08
A) 8 B) 7 C) 9 D) 11 E) 10

42. $\sqrt{x^2}-\sqrt[3]{x^3}+\sqrt[4]{x^4}-\sqrt[5]{x^5}=7$ tenglamani yeching. 03-01-02
A) yechimga ega emas B) 1,75 C) 1,25
D) –1,25 E) –1,75

43. $|17-3x^2|=3x+2$ tenglama nechta ildizga ega? 03-01-68
A) 1 B) 2 C) 3 D) 4 E) ildizi yo'q

44. $\sqrt{(x-7)^2}+\sqrt[3]{(5-x)^3}=8$ tenglamaning ildizi nechta? 06-12-15
A) ildizi yo'q B) 1 C) 2 D) 3 E) cheksiz ko'p

45. $|x|=x^2+x-4$ tenglamaning ildizlari yig'indisini toping. 01-03-05
A) $2-\sqrt{5}$ B) $1-2\sqrt{5}$ C) $-1-\sqrt{5}$
D) $1+\sqrt{5}$ E) $1-\sqrt{5}$

46. $|x^2+5x-4|=3x-1$ tenglamaning ildizlari yig'indisini toping. 01-07-17
A) –10 B) –8 C) $-1+\sqrt{21}$ D) $-3+\sqrt{21}$ E) 1

47. $|x|=x^2-6$ tenglamaning ildizlari ko'paytmasini toping. 03-01-21
A) –6 B) –1 C) 3 D) –9 E) 6

48. $x|x|+2x+1=0$ tenglamani yeching. 03-03-16
A) 1 B) –1 C) $1-\sqrt{2}$ D) $1+\sqrt{2}$
E) –1; $1-\sqrt{2}$; $1+\sqrt{2}$

49. $x^2=|5x-6|$ tenglamaning nechta ildizi bor? 03-12-67
A) 0 B) 1 C) 2 D) 3 E) 4

50. $|x^2+3x+2|=|x^2+2x+5|+|x-3|$ tenglamani yeching. 03-01-23
A) 3, 5 B) 4, 6 C) $[3;\infty)$ D) $[0;3]$ E) $[3;10]$

51. $|x+3|+|x-1|+|x-4|=6$ tenglamaning ildizlari yig'indisini toping. 96-03-70
A) ildizi yo'q B) 0 C) –4 D) 1 E) –2

52. $|x+2|+|x|+|x-2|=4$ tenglama nechta ildizga ega? 96-09-20
A) ildizi yo'q B) cheksiz ko'p C) 1 D) 2 E) 4

53. $|x+4|+|x-2|+|x-3|=7$ tenglamaning ildizlari yig'indisini toping. 96-12-77
A)2 B)ildizi yo'q C)0 D)–2 E)1

54. $|x-4|+|x-1|+|x+2|=6$ tenglamaning ildizlari nechta? 96-13-20
A)ildizi yo'q B)2 C)3 D)1 E)cheksiz ko'p

55. $x^2-3|x|-40=0$ tenlamaning ildizlari ko'paytmasini toping. 00-04-11
A) –40 B)40 C) –32 D) –64 E) –56

56. $(2|x|-3)^2=|x|$ tenglamaning barcha ildizlari ko'paytmasini toping. 2006
A) $-\frac{1}{16}$ B) $\frac{1}{16}$ C) $-\frac{81}{16}$ D) $\frac{81}{16}$

5-§. Tenglamalar sistemalari.

1. $\begin{cases} x+2=0 \\ xy^2=-8 \end{cases}$ tenglamalar sistemasini yeching. 97-02-20
A)(–2; –2) B)(–2; 2) C)(–2; 2), (–2; –2)
D)(2; 2) E)(2; 2), (–2; –2)

2. $\begin{cases} y+4=2 \\ x^2y=-2 \end{cases}$ tenglamalar sistemasini yeching. 97-08-20
A)(1; -2) B)(-1;-2) C)(1; 2)
D)(-1; -2); (1; -2) E)(-1;2);(1;-2)

3. $\begin{cases} x+3=0 \\ xy^2=-12 \end{cases}$ tenglamalar sistemasining yechimini toping. 01-03-34
A)(–3; 2) B)(–3; –2) C)(–3; –2), (–3; 2)
D)Ø E)(3; 2)

4 $\begin{cases} x^2-1=0 \\ xy^2=-4 \end{cases}$ tenglamalar sistemasini yeching. 98-10-17
A)(–1; 2) B)(2; –1) C)(2; 1)
D)(–1; 2) va (–1; –2) E)(–1; –2)

5. $\begin{cases} x^2+y^2-2xy=1 \\ x+y=3 \end{cases}$ sistemaning yechimini toping. 96-01-19
A)(2, 1) B)(1; 2) C)(1,5; 1,5)
D)(2; 1) va (1; 2) E)(4; –1)

6. $\begin{cases} x+y=3 \\ x^2-y^2=6, \end{cases}$ $x-?$ 96-03-75
A)1,5 B)2,5 C)3 D)1 E)2

7. $\begin{cases} x^2-y^2-3x=12 \\ x-y=0. \end{cases}$ tenglamalar sistemasini yeching. 96-06-20
A)(–4; 4) B)(4; –4) C)(4; 4) D)(–4; –4)
E)javob ko'rsatilganlardan farqli

8. $\begin{cases} x^2+y^2=9 \\ y-x=-3 \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 96-07-23
A)1 B)2 C)3 D)4 E)yechimga ega emas

9. $\begin{cases} x^2+y^2=10 \\ x+y=4 \end{cases}$, $x\cdot y-?$ 96-09-16
A)4 B)5 C)6 D)7 E)3

10. $\begin{cases} x^2+y^2-2xy=16 \\ x+y=-2 \end{cases}$ sistemaning yechimini toping. 96-09-70
A)(1; –3) B)(–3; 1) C)(0; –2)
D)(1; –3) va (–3;1) E)(2; –4) va (–4; 2)

11. $\begin{cases} x-y=4 \\ x^2+y^2+2xy=4 \end{cases}$ sistemaning yechimini toping. 96-10-20
A)(3; 1) B)(3; –1) C)(3; –1) va (1; -3)
D)(2; –2) E)(5; 1) va (2; –2)

12. $\begin{cases} x^2+y^2=3 \\ x-y=1, \end{cases}$ $x\cdot y-?$ 96-12-73
A)2 B)3 C)1,5 D)2,5 E) 1

13. $\begin{cases} x^2+y^2+xy=8 \\ x+y=3, \end{cases}$ $x\cdot y-?$ 96-13-16
A)4 B)1 C)2 D)0,5 E)5

14. $\begin{cases} x^2+y^2=25 \\ x-y=2 \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 97-03-23
A)4 B)3 C)2 D)1 E)yechimga ega emas.

15. $\begin{cases} x^2+y^2=16 \\ y-x=4 \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 97-07-23
A)1 B)2 C)3 D)4 E)yechimga ega emas.

16. $\begin{cases} x^2-y^2=4 \\ x-y=-2 \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 97-10-23
A)4 B)3 C)2 D)1 E)yechimga ega emas

17. $\begin{cases} x^2-y^2+2x+4=0 \\ x-y=0 \end{cases}$ tenglamalar sistemasini yeching. 97-12-19
A)(2; 2) B)(–2; –2) C)(–1; –1) D)(1; 1) E)(–2; 2)

18. $\begin{cases} y - x^3 = 0 \\ y = 16x \end{cases}$ tenglamalar sistemasini yeching. 99-01-19
A)(0;0), (4; 64), (–4; –64)
B)(0, 0), (8; 2), (27; 3) C)∅
D)(0; 0), (2; 8), (64; 4)
E)(16; 1), (15; 2), (48; 3)

19. $\begin{cases} x + y = 6 \\ x^2 - y^2 = 12 \end{cases}$ $x - ?$ 01-03-32
A)4 B)2 C)1 D)3 E)5

20. $\begin{cases} x^2 + y^2 - xy = 1 \\ x + y = -2 \end{cases}$ $3xy = ?$ 01-03-33
A)1 B)–1 C)3 D)–3 E)2

21. Agar $\begin{cases} x^2 - y^2 = 6 \\ x + y = 1 \end{cases}$ bo'lsa, $x - y$ ning qiymatini toping. 01-04-23
A)1 B)–1 C)6 D)–6 E)0

22. Agar $\begin{cases} y - x = 1 \\ \dfrac{x+3y+1}{y} - \dfrac{y-x+3}{2(x-2)} = 2 \end{cases}$ bo'lsa, $x \cdot y$ ning qiymatini toping. 03-11-65
A)15 B)–6 C)–8 D)6 E)12

23. $x^2 + ax - 2 = 0$ va $x^3 + ax^2 - 2 = 0$ tenglamalar umumiy ildizga ega bo'lsa, a ni toping. 98-06-21
A)1 B)2 C)1,5 D)3 E)–1

24. Agar $a - b = 1$ va $(a^2 - b^2)(a - b) = 9$ bo'lsa, ab ning qiymatini toping. 00-01-23
A)19 B)22 C)21 D)20 E)24

25. Agar $x + y + 2z = 13$, $x + 2y + z = 12$ va $2x + y + z = 11$ bo'lsa, $x + y$ ning qiymati nechaga teng bo'ladi? 00-07-11
A)4 B)6 C)5 D)3 E)7

26. a ning qanday qiymatida $\begin{cases} x + y = a \\ xy = 9 \end{cases}$ tenglamalar sistemasi yagona yechimga ega? 01-07-19
A)3 B)6 C)–3 D)–3; 3 E)–6, 6

27. Agar $y - x = 2$ va $a > 0$ bo'lsa, $\begin{cases} y^2 - x^2 = 8a \\ y + x = a^2 \end{cases}$ tenglamalar sistemasini yeching. 02-09-15
A)(5; 7) B)(7; 9) C)(4, 6) D)(–6; –4) E)(–10; –8)

28. Agar $m^2 + n^2 = p^2 + q^2 = 1$ va $mp + nq = 0$ bo'lsa, $mn + pq$ ning qiymatini toping. 03-03-02
A)1 B)0 C)2 D)4 E)0,5

29. $mn^2 = 18$ va $m^2k = 20$ bo'lib, m, n va k natural sonlar bo'lsa, n ni toping. 03-05-09
A)3 B)2 C)5 D)4 E)6

30. m va n natural sonlar. $\dfrac{6}{x} = \dfrac{1}{m} + \dfrac{1}{n}$ va $m + n = 18$ bo'lsa, x ning eng katta qiymatini toping. 03-11-07
A)27 B)24 C)18 D)30 E)15

31. Agar $x^2 + y^2 = 225$ va $x^2 - y^2 = 63$ bo'lsa, $|x| - |y|$ ni toping. 98-06-10
A)3 B)4 C)5 D)6 E)7

32. Agar $\begin{cases} x^3 + 2x^2y + xy^2 - x - y = 2 \\ y^3 + 2xy^2 + x^2y + x + y = 6 \end{cases}$ bo'lsa, $x + y$ ni toping. 01-07-18
A)1 B)2 C)–1 D)–2 E)3

33. Agar $x^2y + xy^2 = 48$ va $x^2y - xy^2 = 16$ bo'lsa, $\dfrac{x}{y}$ ning qiymatini toping. 99-10-22
A)$\dfrac{1}{4}$ B)–2 C)2 D)$-\dfrac{1}{2}$ E)$\dfrac{1}{2}$

34. Agar $a^2 + 3ab + b^2 = 44$ va $a^2 + ab + b^2 = 28$ bo'lsa, $a^2 - ab + b^2$ ning qiymati nechaga teng bo'ladi? 00-07-10
A)14 B)18 C)12 D)19 E)16

35. $\begin{cases} xy = 6 \\ yz = 12 \\ zx = 8 \end{cases}$ va bo'lsa, $x + y + z$ ning qiymatini toping. 00-08-14
A)–9 yoki 9 B)18 C)0 D)36 E)26

36. Agar $xy = 6$, $yz = 2$ va $xz = 3$ $(x > 0)$ bo'lsa, xyz ni toping. 98-06-02
A)–6 B)6 C)5 D)12 E)–12

37. Agar $ab = 18$, $bc = 25$ va $ac = 8$ bo'lsa, $\sqrt{abc}$ nimaga teng? 99-06-37
A)$2\sqrt{15}$ B)$15\sqrt{2}$ C)$6\sqrt{5}$ D)$8\sqrt{3}$ E)$3\sqrt{15}$

38. Agar $\begin{cases} x^2y = 50, \\ xy^2 = 20 \end{cases}$ bo'lsa, xy ning qiymatini hisoblang. 99-10-11
A)8 B)10 C)6 D)12 E)15

39. $\begin{cases} xy + x + y = 11 \\ x^2y + y^2x = 30 \end{cases}$ tenglamalar sistemasi uchun $x + y$ ning eng katta qiymatini toping. 02-08-11
A)6 B)5 C)7 D)4 E)8

40. Agar $\begin{cases} x^2y + xy^2 = 120 \\ x^2y - xy^2 = 30 \end{cases}$ bo'lsa, $x^2 - y^2$ ning qiymatini hisoblang. 03-01-65
A)16 B)20 C)25 D)34 E)42

41. $\begin{cases} \frac{xy}{x+y} = \frac{10}{7} \\ \frac{yz}{y+z} = \frac{40}{13} \\ \frac{zx}{z+x} = \frac{5}{8} \end{cases}$ tenglamalar sistemasidan x ni toping. 03-08-40
A) $\frac{80}{79}$ B) $\frac{5}{7}$ C) $\frac{7}{13}$ D) $\frac{79}{80}$ E) $\frac{7}{5}$

42. Agar $\frac{ab}{a+b} = 1$; $\frac{ac}{a+c} = 2$ va $\frac{bc}{b+c} = 3$ bo'lsa, $\frac{ab}{c}$ ning qiymatini toping. 00-04-36
A) $\frac{6}{25}$ B) $-\frac{15}{58}$ C) $\frac{21}{40}$ D) $-\frac{12}{35}$ E) $\frac{18}{65}$

43. Agar $\begin{cases} \sqrt{x} + \sqrt{y} = 3 \\ \sqrt{xy} = 2 \end{cases}$ bo'lsa, $x + y$ ni toping. 97-05-26
A)2 B)3 C)4 D)5 E)6

44. Agar $\begin{cases} \sqrt{x} + \sqrt{y} = 5 \\ \sqrt{xy} = 4 \end{cases}$ bo'lsa, $x + y$ ni toping. 97-09-26
A)17 B)18 C)19 D)16 E)15

45. Agar $\begin{cases} \frac{1}{\sqrt{x}} + \frac{1}{\sqrt{y}} = \frac{4}{3} \\ xy = 9 \end{cases}$ bo'lsa, $x + y$ ning qiymatini toping. 03-11-03
A)10 B)9 C)8 D)12 E)11

46. Agar $\begin{cases} x - y = 21, \\ \sqrt{x} - \sqrt{y} = 3 \end{cases}$ bo'lsa, $x + y$ ning qiymatini toping. 01-01-19
A)7 B)12 C)23 D)29 E)31

47. $\begin{cases} y = \sqrt{16 - x^2} \\ y - x = 4 \end{cases}$ tenglamala sistemasining nechta yechimi bor? 01-09-12
A)2 B)1 C)0 D)3 E)4

48. Agar $\begin{cases} x^2 + xy + y^2 = 84, \\ x + \sqrt{xy} + y = 14 \end{cases}$ bo'lsa, $\frac{|x-y|}{x+y}$ ning qiymatini toping. 01-02-64
A)0,3 B)0,4 C)0,5 D)0,6 E)0,8

49. Agar $\begin{cases} x + y - \sqrt{xy} = 7 \\ x^2 + y^2 + xy = 133 \end{cases}$ bo'lsa, xy ning qiymatini toping. 03-08-34
A)36 B)42 C)25 D)81 E)16

50. Agar $\begin{cases} \frac{7}{\sqrt{x-7}} - \frac{4}{\sqrt{y+6}} = \frac{5}{3} \\ \frac{5}{\sqrt{x-7}} + \frac{3}{\sqrt{y+6}} = \frac{13}{6} \end{cases}$ bo'lsa, $x + y$ ning qiymatini hisoblang. 02-09-27
A)19 B)45 C)9 D)36 E)46

51. $\begin{cases} \sqrt{(x+2)^2} = x + 2 \\ \sqrt{(x-2)^2} = 2 - x \end{cases}$ tenglamalar sistemasini yeching. 97-05-39
A) $x \geq -2$ B) $x < 2$ C) $x \leq 2$
D) $-2 \leq x \leq 2$ E) $-2 < x < 2$

52. $\begin{cases} \sqrt{(x+5)^2} = x + 5 \\ \sqrt{(x-5)^2} = 5 - x. \end{cases}$ tenglamalar sistemasini yeching. 97-09-39
A) $-5 \leq x \leq 5$ B) $x \leq 5$ C) $x \geq -5$
D) $-5 < x < 5$ E) $x < 5$

53. Agar $\begin{cases} |x| + y = 2, \\ 3x + y = 4 \end{cases}$ bo'lsa, $x + y$ ning qiymatini toping. 98-01-23
A)3 B)1 C)2,5 D)2 E)1,5

54. Agar $\begin{cases} x + 2|y| = 3 \\ x - 3y = 5 \end{cases}$ bo'lsa, $x - y$ ning qiymatini toping. 98-08-23
A)3 B)2 C)1 D)-1 E)-4

55. Agar $\begin{cases} |x-1| + |y-5| = 1 \\ y = 5 + |x-1| \end{cases}$ bo'lsa, $x + y$ qanday qiymatlar qabul qilishi mumkin? 02-12-17
A)6 yoki 8 B)7 C)8 yoki 10 D)6 yoki 7 E)9

56. Agar $\begin{cases} (x-2)^2 + |y| = 4 \\ |x-2| + |y| = 2 \end{cases}$ bo'lsa, $x + y$ ning qiymatini toping. 00-07-20
A)4 yoki 2 yoki 0 B)0 yoki 3 C)2 yoki 4
D)0 yoki 4 E)3 yoki 4

57. $\begin{cases} |x| + |y| = 1 \\ x^2 + y^2 = 4 \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 01-07-20
A)1 B)2 C)4 D)0 E)to'g'ri javob keltirilmagan

58. Agar $\begin{cases} |x+y|=5 \\ xy=4{,}75 \end{cases}$ bo'lsa, son o'qida x va y sonlari orasidagi masofani toping. 03-10-31

A) $\sqrt{6}$ B) $\sqrt{3}$ C) $\sqrt{5}$ D) $\sqrt{7}$ E) $\sqrt{13}$

59. a ning qanday qiymatlarida $\begin{cases} 3|x|+y=2 \\ |x|+2y=a \end{cases}$ sistema yagona yechimga ega? 98-01-25

A) $a=0$ B) $a>0$ C) $a=2$
D) $a=-2$ E) $a=4$

60. x ning $\begin{cases} x^5y^7=32 \\ x^7y^5=128 \end{cases}$ tenglamalar sistemasining yechimlaridan iborat barcha qiymatlari yig'indisini toping. 02-11-27

A) 0 B) 4 C) 8 D) 12 E) 16

61. b ning qanday qiymatlarida $\begin{cases} x=3-|y| \\ 2x-|y|=b \end{cases}$ tenglamalar sitemasi yagona yechimga ega? 98-08-25

A) $b=0$ B) $b>0$ C) $b<1$ D) $b=6$ E) $b=4$

62. Agar $xy=4$, $yz=7$ va $xz=28$ $(y>0)$ bo'lsa, xyz ni toping. 98-11-52

A) -28 B) 28 C) 27 D) 56 E) -56

63. Agar $\begin{cases} x^2-2xy+y^2=9 \\ xy=10 \end{cases}$ bo'lsa, $|x+y|$ ni hisoblang 98-05-22

A) 7 B) 6 C) 5 D) 8 E) 4

64. Agar $\begin{cases} x-3y=5 \\ x+2|y|=3 \end{cases}$ bo'lsa, $x-2y$ ning qiymatini toping. 2006

A) 2 B) 3 C) -1 D) 1

1-§. Sonli tengsizliklar. Ularning xossalari.

1. Quyidagi munosabatlardan qaysi biri noto'g'ri? 97-04-06

A) $|a^2+b^2| = a^2+b^2$

B) $a>0$ bo'lsa, $|a+b^4| = a+b^4$

C) $a<0$ bo'lsa, $|a^3+b^2| \ge a^3+b^2$

D) $a<0$, $b<0$ bo'lsa, $|a+b| = -a-b$

E) $a<0$, $b>0$ bo'lsa, $|a+b| = b-a$

2. $a>0$; $b<0$; $|a| \ne |b|$. Quyidagi ifodalardan qaysi birining qiymati musbat bo'lmasligi mumkin? 03-02-63

A) $a-b$ B) $|a+b|$ C) a^3b^2 D) $|a-b|$ E) $|a|-|b|$

3. $a>b>c>0$ bo'lsa, $\frac{1}{a}$, $\frac{1}{a+b}$ va $\frac{1}{a+c}$ larni taqqoslang. 97-04-08

A) $\frac{1}{a} < \frac{1}{a+c} < \frac{1}{a+b}$ B) $\frac{1}{a} < \frac{1}{a+b} < \frac{1}{a+c}$

C) $\frac{1}{a+b} < \frac{1}{a+c} < \frac{1}{a}$ D) $\frac{1}{a+b} \le \frac{1}{a} \le \frac{1}{a+c}$

E) $\frac{1}{a+c} < \frac{1}{a+b} \le \frac{1}{a}$

4. Quyidagi munosabatlardan qaysi biri noto'g'ri? 97-09-66

A) $|a^2+b^2| \le a^2+b^2$ B) $|a^5+b^5| \ge a^5+b^5$

C) $|a^3+b^4| \ge a^3+b^4$ D) $\sqrt{a^2} = |a|$ E) $(\sqrt{a})^2 = a$

5. Agar $a<0<b$ va $|a|>|b|$ bo'lsa, $\frac{1}{a^3+b^3}$, $\frac{1}{a^4+b^3}$ va $\frac{1}{a^3}$ larni taqqoslang. 97-09-68

A) $\frac{1}{a^3} > \frac{1}{a^3+b^3} > \frac{1}{a^4+b^3}$

B) $\frac{1}{a^4+b^3} > \frac{1}{a^3+b^3} > \frac{1}{a^3}$

C) $\frac{1}{a^4+b^3} > \frac{1}{a^3} > \frac{1}{a^3+b^3}$

D) $\frac{1}{a^3+b^3} > \frac{1}{a^3} > \frac{1}{a^4+b^3}$

E) $\frac{1}{a^3+b^3} > \frac{1}{a^4+b^3} > \frac{1}{a^3}$

6. Agar $a \ne 0$ bo'lsa, $|a+b|-|b|$ ifodaning qiymati: 98-04-08

A) $a>b$ bo'lganda musbat bo'ladi

B) $a<b$ bo'lganda manfiy bo'ladi

C) $a=b$ bo'lganda musbat bo'ladi

D) $a<0$ bo'lganda manfiy bo'ladi

E) To'g'ri javob berilmagan

7. $a>b>0$ shartni qanoatlantiruvchi a va b sonlar uchun quyidagi munosabatlardan qaysi biri o'rinli? 98-12-31

1) $a^3 > ab^2$ 2) $a^4 > a^2b^2$ 3) $a^2b^2 < b^4$ 4) $\frac{2}{a} > \frac{2}{b}$

A) 1 B) 1, 2 C) 3 D) 4 E) 2, 4

8. Agar $2<a<3$ va $-3<b<-2$ bo'lsa, quyidagilardan qaysi biri har doim o'rinli bo'ladi? 99-05-34

A) $a^2b^2-50<0$ B) $\frac{(a+b)^2-2ab}{a-b} < 0$

C) $b^3a^2-5<0$ D) $a^3b^2-2<0$ E) $a^3b^3+3>0$

9. Agar $a<-1$ bo'lsa, quyida keltirilgan ifodalardan qaysi birining qiymati eng katta bo'ladi? 00-04-31

A) a^{-1} B) a^{-2} C) a^{-5} D) a^3 E) a^5

10. Agar $y>x$; $t=\frac{1}{z}$ bo'lsa, quyidagilardan qaysi biri doimo o'rinli bo'ladi? 00-09-26

A) $t+\frac{1}{x} = z+\frac{1}{y}$ B) $x+\frac{1}{t} < y+z$ C) $x+\frac{1}{t} > y+z$

D) $x+\frac{1}{z} > y$ E) $x+\frac{1}{t} > y+\frac{1}{z}$

11. Agar a, $b \in N$, $a>10$ va $b>16$ bo'lsa, quyidagilardan qaysi biri har doim o'rinli bo'ladi? 99-05-17

A) $a-b<6$ B) $\frac{3a-b}{b} > 0$ C) $\frac{b-2a}{a} < 0$

D) $\frac{b}{a} > 1{,}5$ E) $a+b \ge 28$

12. Agar $x \in [2;5]$ va $y \in [2;5]$ bo'lsa, $\frac{3x-1}{12+y} + \frac{18+x^2}{y^2+y+1}$ ifodaning eng katta qiymati nechaga teng bo'lishi mumkin? 01-10-26

A) $7\frac{1}{7}$ B) $6\frac{2}{7}$ C) $5\frac{3}{8}$ D) $7\frac{2}{7}$ E) $6\frac{3}{7}$

13. $\frac{1}{x^2+11}$ ifodaning eng katta qiymati bilan x^4-5 ning eng kichik qiymati ko'paytmasini toping. 02-01-25

A) $-0{,}(45)$ B) $-0{,}45$ C) $0{,}(45)$ D) $0{,}5$ E) $-0{,}5$

14. $y=\frac{3}{x^2-2x+3}$ funksiyaning eng katta qiymatini hisoblang. 02-12-16

A) 3 B) 1 C) aniqlab bo'lmaydi D) 2,5 E) 1,5

15. $a=\frac{5}{11}$, $b=\frac{3}{7}$ va $c=\frac{6}{13}$ bo'lsa, a, b va c ni o'sish tartibida joylashtiring. 98-03-05

A) a, b, c B) b, a, c C) b, c, a

D) c, b, a E) c, a, b

16. $a=\frac{5}{11}$, $b=\frac{6}{13}$ va $c=\frac{7}{15}$ sonlarni o'sish tartibida joylashtiring. 98-10-53

A) $a<b<c$ B) $b<a<c$ C) $b<c<a$

D) $c<b<a$ E) $c<a<b$

17. $a=\frac{7}{36}$, $b=\frac{11}{34}$, $c=\frac{7}{32}$ va $d=\frac{9}{25}$ sonlarni kamayish tartibida joylashtiring.
A) $a>b>c>d$ B) $b>a>d>c$
C) $d>a>b>c$ D) $a>c>b>d$
E) $d>b>c>a$ 99-04-10

18. $m=\frac{119}{120}$ va $n=\frac{240}{242}$ sonlar uchun quyidagi munosabatlardan qaysi biri to'g'ri?
A) $n>m$ B) $n<m$ C) $n=m$ D) $n-1=m$
E) $n=\frac{2m+2}{242}$ 98-07-15

19. $a=\frac{49}{150}$; $b=\frac{102}{300}$ va $c=\frac{22}{75}$ sonlarini o'sish tartibida joylashtiring.
A) $a<c<b$ B) $b<c<a$ C) $c<a<b$
D) $b<c<a$ E) $a<b<c$ 98-10-07

20. $m=\frac{1107}{1109}$ va $n=\frac{2216}{2220}$ sonlari uchun quyidagi munosabatlardan qaysi biri to'g'ri?
A) $m<n$ B) $m>n$ C) $m=n$ D) $n=m+1$ E) $n=\frac{2m+2}{2220}$ 98-12-14

21. Agar x va y sonlari uchun $x\cdot y=20$ va $0<x<0{,}8$ munosabat o'rinli bo'ladi?
A) $\frac{y}{x}<20$ B) $x+y<20$ C) $y<16$ D) $y>25$
E) Keltirilgan javoblar ichida to'g'risi yo'q. 99-05-24

22. Agar $-2<a<-1$ va $-3<b<-2{,}5$ bo'lsa, $a-b$ ayirma qaysi sonlar orasida bo'ladi?
A) (0,5; 2) B) (1; 1,5) C) (-1,5; -1)
D) (-1,5; 1) E) (-1; 1,5) 99-08-15

23. Ushbu $\begin{cases} ax>5a-1 \\ ax<3a+1 \end{cases}$ tengsizliklar sistemasi a ning qanday qiymatlarida yechimga ega bo'lmaydi?
A) $\{1\}$ B) $(-\infty;0)$ C) $(-\infty;0)\cup[1;\infty)$ D) $[1;\infty)$ E) $\varnothing$ 96-03-78

24. $\begin{cases} ax\ge 7a-3 \\ ax\le 3a+3 \end{cases}$ tengsizliklar sistemasi a ning qanday qiymatlarida yechimga ega bo'lmaydi?
A) $(1,5;\infty)$ B) $[1,5;\infty)$ C) $(-\infty;0)\cup(1,5;\infty)$
D) $(-\infty;0)$ E) $(-\infty;0)\cup[1,5;\infty)$ 96-09-19

25. $\begin{cases} bx\ge 6b-2 \\ bx\le 4b+2 \end{cases}$ tengsizliklar sistemasi b ning qanday qiymatlarida yechimga ega bo'lmaydi?
A) $(-\infty;0)\cup[2;\infty)$ B) $\{2\}$ C) $(0;2)$ D) $(2;\infty)$ E) $(-\infty;0)$ 96-12-76

26. $\begin{cases} bx\le 5b-3 \\ bx\le 4b+3 \end{cases}$ tengsizliklar sistemasi b ning qanday qiymatlarida yechimga ega bo'lmaydi?
A) $(6;\infty)$ B) $[6;\infty)$ C) $(-\infty;0)\cup(6;\infty)$
D) $(-\infty;0)$ E) $(-\infty;0)\cup[6;\infty)$ 96-13-19

27. a ning qanday qiymatlarida $\begin{cases} 3-7x<3x-7 \\ 1+2x<a+x \end{cases}$ tengsizliklar sistemasi yechimga ega emas?
A) $a<4$ B) $a\le 1$ C) $a<2$ D) $a>1$ E) $a\le 2$ 00-06-20

28. $a=1\cdot 2\cdot 3\cdot\ldots\cdot 29$ va $b=15^{29}$ ni taqqoslang.
A) $a=b$ B) $a>b$ C) $a<b$ D) $a=b+1$ E) $a=b-1$ 97-05-19

29. $a=1\cdot 2\cdot 3\cdot\ldots\cdot 59$ va $b=30^{59}$ ni taqqoslang.
A) $a=b+1$ B) $a=b-1$ C) $a=b$ D) $a>b$ E) $a<b$ 97-09-19

30. Quyida keltirilgan tengsizliklardan qaysi biri $3x-a>b-2x$ tengsizlikka teng kuchli emas?
A) $5x-a>b$ B) $6x-2a>2b-4x$
C) $3x>a+b-2x$ D) $5x>a+b$
E) $a-3x>2x-b$ 98-02-17

31. $a>2b>0$ shartni qanoatlantiruvchi a va b sonlar uchun quyidagi munosabatlardan qaysilari o'rinli?
1) $a^3>7b^3$ 2) $\frac{a-b}{2}>\frac{b}{2}$ 3) $\frac{6b-a}{a}<2$
4) $\frac{6b-3a}{a}>0$
A) hammasi B) 2; 3; 4 C) 1; 2; 4 D) 1; 4
E) 1; 2; 3 98-07-36

32. Agar $a<b$ va $ab\ne 0$ bo'lsa, quyidagi tengsizliklardan qaysi biri har doim o'rinli?
A) $\frac{1}{a}>\frac{1}{b}$ B) $a^2>b^2$ C) $-a>-b$
D) $2a<3a+b$ E) $2a>a+b$ 98-10-15

33. Agar $x>y$ va $z>t$ bo'lsa, quyidagi tengsizliklardan qaysi biri har doim o'rinli bo'ladi?
A) $x\cdot z>y\cdot t$ B) $\frac{x}{z}>\frac{y}{t}$ C) $(x+y)^4>(z+t)^4$
D) $7t-13x<7z-13y$ E) $x-z>y-t$ 00-04-20

34. Agar $x>3$ va $y<-3$ bo'lsa, quyidagi tengsizliklardan qaysi biri doimo o'rinli bo'ladi?
A) $(x+y)^2>3$ B) $xy<-9$ C) $\frac{x}{y}>-1$
D) $\frac{2x+y^2}{y}>6$ E) $\frac{x-y}{x^2+y}>\frac{1}{2}$ 01-02-76

35. 1. $a^2>0$, 2. $a^2-10<0$, 3. $(a-5)^2\ge 0$ va 4. $\frac{1}{a^2}+a^2>2$ tengsizliklarning qaysilari a ning barcha qiymatlarida o'rinli?
A) 1 B) 2 C) 1, 3 va 4 D) 3 E) 2 96-06-11

36. Agar $x>y>0$ bo'lsa, $\left|\sqrt{xy}-\frac{x+y}{2}\right|+\left|\frac{x+y}{2}+\sqrt{xy}\right|$ ni soddalashtiring.
A) $x-y$ B) $2\sqrt{xy}$ C) $-2\sqrt{xy}$ D) $x+y$ E) $y-x$ 99-10-23

37. Agar $\begin{cases} p^2+q^2<29 \\ pq<22 \end{cases}$ bo'lsa, $|p+q|$ ning butun qiymatlari nechta?
A) 5 B) 6 C) 7 D) 8 E) 9 01-06-16

38. Agar $2a^2+2b^2=5ab$ va $b>a>0$ bo'lsa, $\frac{a+b}{a-b}$ kasrning qiymati nechaga teng? 03-05-11
A)–3 B)3 C)2 D)4 E)–2

39. $xy=\frac{5}{12}$ va $36<\frac{5}{y}<84$ bo'lsa, x ning butun qiymatlari ko'paytmasini toping. 03-05-13
A)120 B)60 C)90 D)180 E)210

40. $y=\frac{x^2-5}{x^2+5}$ funksiyaning eng kichik qiymatini toping. 97-09-40
A)5 B)–5 C)–1 D)1 E)0

41. $\frac{x^2+2x+8}{x^2+2x+3}$ ifodaning eng katta qiymatini toping. 99-09-10
A)3,5 B)2,6 C)2,4 D)2,8 E)3

42. Agar $3\le x\le 6$ va $15\le y\le 60$ bo'lsa, $\frac{y}{x}$ ning qiymati qaysi kesmaga tegishli? 00-09-66
A)[5; 10] B)[0,5; 20] C)[5; 20] D)[2,5; 20]
E)[0,1; 0,2]

43. Agar $2<x\le 5$ va $3\le y<6$ bo'lsa, $xy-x$ ning qiymati qaysi oraliqqa tegishli bo'ladi? 02-10-47
A)(1;28) B)(2;25) C)(6;30) D)(4;25) E)(1;25]

44. Quyidagi tengsizliklardan qaysi biri x va y ning $xy>0$ shartni qanoatlantiradigan barcha qiymatlarda o'rinli? 97-02-11
A) $(x-y)^2>0$ B) $\frac{x}{y}+\frac{y}{x}\ge 2$ C) $x^2-y^2>0$
D) $x^2-6xy+9y^2<0$ E) $x^3-y^3>0$

45. $5a^8+10a^{-4}b^{-4}+5b^8$ ifodaning eng kichik qiymatini toping. 99-05-12
A)10 B)20 C)100 D)25 E)50

46. Agar $x>0$ bo'lsa, $x+\frac{81}{x}$ ning eng kichik qiymatini toping. 01-08-20
A)30 B)24 C)6 D)12 E)18

47. $y=\frac{18}{x^2}+\frac{x^2}{2}$ funksiyaning eng kichik qiymatini toping. 02-10-17
A)6 B)5 C)4 D)3 E)2

48. Agar $16\le x\le y\le z\le t\le 100$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymatini toping. 00-10-53
A)0,9 B)200 C)0,8 D)0,2 E)topib bo'lmaydi

49. Agar $9\le x\le y\le z\le t\le 81$ bo'lsa, $\frac{x}{y}+\frac{x}{t}$ ifodaning eng kichik qiymatini toping. 02-01-07
A) $\frac{2}{3}$ B) $\frac{3}{2}$ C) $\frac{1}{5}$ D) $\frac{1}{3}$ E)topib bo'lmaydi

50. Agar $25\le x\le y\le z\le t\le 64$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymatini toping. 02-01-15
A)1,25 B)1,6 C) $\frac{25}{32}$ D)0,2 E)topib bo'lmaydi

51. Agar $7\le x\le y\le z\le t\le 112$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymatini toping. 02-02-15
A)0,5 B)0,2 C)0,7 D)0,8 E)topib bo'lmaydi

52. Agar $16\le x\le y\le z\le t\le 121$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymatini toping. 02-02-62
A) $\frac{8}{11}$ B) $\frac{11}{8}$ C) $\frac{4}{11}$ D) $\frac{2}{11}$ E)topib bo'lmaydi

53. Agar $8\le x\le y\le z\le t\le 200$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymatini toping. 02-03-23
A)0,4 B)0,9 C)0,7 D)0,2 E)topib bo'lmaydi

54. Agar $5\le x\le y\le z\le t\le 320$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymatini toping. 02-03-55
A)0,25 B)0,5 C)1,6 D)0,16 E)topib bo'lmaydi

55. $y=\frac{18}{x^2}+1\frac{7}{18}x^2$ funksiyaning eng kichik qiymatini toping. 2006
A)5 B)6 C)10 D)4

2-§. Yuqori darajali tengsizliklar.

1. y ning qanday qiymatlarida $\frac{2y-1}{3}$ kasrning qiymati $(-1; 1)$ oraliqqa tegishli? 00-06-22
A)$(-1; 2)$ B)$(0; 2)$ C)$(-\frac{1}{2}; 1)$ D)$(-2; 2)$
E)To'g'ri javob keltirilmagan

2. $1\le\frac{x+3}{4}\le 4$ tengsizlikning tub sonlardan iborat nechta yechimi bor? 01-08-01
A)6 B)5 C)4 D)3 E)7

3. $x>1$ va $x^2>x$ tengsizliklar teng kuchli bo'ladigan sonli oraliqni ko'rsating. 02-01-21
A)$(1;\infty)$ B)$(-\infty;0)$ C)$(-\infty;\infty)$ D)$\emptyset$ E)$(-\infty,0)\cup(0;\infty)$

4. x ning qanday qiymatlarida $y=x^2$ funksiyaning qiymati 9 dan katta bo'ladi? 03-06-50
A) $-3<x<3$ B) $x<-3$ C) $x>3$
D) $x\le -3$ E) $x<-3,\ x>3$

5. $\frac{t-6}{m-8}=\frac{m}{t}$ tenglama ildizga ega bo'lmaydigan m ning barcha natural qiymatlari yig'indisini hisoblang. 06-09-12
A)20 B)25 C)28 D)30 E)32

6. $\frac{z-8}{k-10}=\frac{k}{z}$ tenglama ildizga ega bo'lmaydigan k ning barcha natural qiymatlari yig'indisini toping. 99-05-02
A)20 B)25 C)30 D)35 E)40

7. $\begin{cases}x^2-3x-4\le 0\\ x^2-6x+8\le 0\end{cases}$ tengsizliklar sistemasining eng katta va eng kichik yechimlari yig'indisini toping. 00-07-46
A)3 B)4 C)5 D)6 E)7

8. Nechta tub son $x^2-50>0$ tengsizlikning yechimi bo'la olmaydi? 01-07-22
A)2 B)3 C)4 D)5 E)cheksiz ko'p

9. $x^4<9x$ tengsizlikning butun sonlardagi yechimi nechta? 97-01-58
A)1 B)2 C)3 D)4 E)cheksiz ko'p

10. $x^6<6x$ tengsizlikning nechta butun yechimi bor? 00-
A)Ø B)1 C)2 D)3 E)cheksiz ko'p

11. $x^5-16x>0$ tengsizlikning eng kichik butun musbat va eng katta butun manfiy yechimlari ko'paytmasini toping. 98-02-13
A)–5 B)–4 C) 6 D)–2 E)–3

12. $(n^2-3)(n^2-21)<0$ tengsizlikni qanoatlantiruvchi n ning nechta butun qiymati bor? 02-02-02
A)6 B)5 C)3 D)4 E)8

13. $(9x^2+12x+4)(x-2)<0$ tengsizlikni yeching. 02-10-48
A)$(-\infty;-\frac{2}{3})\cup(-\frac{2}{3};2)$ B)$(-\infty;-2)$ C)$(2;\infty)$
D)$(-\frac{2}{3};2)$ E)$(-1;2)$

14. $(x^2-x-1)(x^2-x-7)\le -5$ tengsizlikning eng katta butun va eng kichik butun ildizlari ayirmasini toping. 01-02-68
A)2 B)3 C)4 D)5 E)6

15. $(x^2+3x+1)(x^2+3x-3)\ge 5$ tengsizlikni yeching 02-07-42
A)$(-\infty;-4]\cup[-2;-1]\cup[1;\infty)$
B)$(-\infty;-4]\cup[1;\infty)$ C)$(-4;-2]\cup[-1;\infty)$
D)$(-2;-1]\cup[1;\infty)$ E)$(-\infty;-4]\cup[-2;-1]$

16. $(x^2+3x)^2<16$ tengsizlikni yeching 03-01-06
A)$(-1;4)$ B)$(-4;1)$ C)$(-2;3)$ D)$(-3;2)$
E)$(-2;1)\cup(2;3)$

17. $x(x+1)(x+2)(x+3)\le 24$ tengsizlikning yechimlari orasida nechta butun son bor? 03-01-31
A)2 B)3 C)4 D)5 E)6

18. $x^3\ge\frac{x^6+8}{9}$ tengsizlik nechta butun sonlarda o'rinli bo'ladi? 03-10-36
A)1 B)2 C)3 D)4 E)cheksiz ko'p

19. $(x-1)(x+1)^2(x-3)^3(x-4)^4\le 0$ tengsizlikning barcha butun qiymatlari yig'indisini toping. 99-05-11
A)6 B)7 C)8 D)9 E)11

20. $(x+3)(x-2)^2(x+1)^3(x-5)^4\le 0$ tengsizlikning barcha butun yechimlari yig'indisini toping. 00-06-71
A)1 B)2 C)3 D)4 E)5

21. a ning qanday qiymatlarida $x+4=\frac{a}{x}$ tenglama ikkita turli haqiqiy ildizga ega? 03-05-35
A)$(-4;\infty)$ B)$(-4;0)\cup(0;\infty)$ C)$[-4;\infty)$
D)$[-4;0)\cup(0;\infty)$ E)$(-4;4)$

22. Nechta butun son $x^4-8x^2+7\le 0$ tengsizlikni qanoatlantiradi? 01-10-12
A)Ø B)1 C)2 D)3 E)4

23. $x^4-10x^2+9<0$ tengsizlikning butun yechimlari nechta? 02-04-14
A)2 B)3 C)4 D)5 E)6

24. $n^2(n^2-n-6)\le 0$ tengsizlik o'rinli bo'ladigan n ning barcha natural qiymatlari yig'indisini aniqlang 03-07-31
A)4 B)2 C)5 D)3 E)6

25. $1256:314<9x-32\le 2976:96$ tengsizlikning barcha natural yechimlarini toping. 99-05-36
A)4; 5; 6 B)5; 6; 7 C)6; 7; 8 D)7; 8 E)4; 5; 6; 7

3-§. Ratsional tengsizliklar.

1. $\frac{x-1}{x-2}\ge 0$ tengsizlikni yeching.
A)$(-\infty;1)\cup(2;-\infty)$ B)$[1;2)$ C)$(1;2)$ D)$(2;\infty)$
E)$(-\infty;1]\cup(2;\infty)$

2. $\frac{x-2}{x-1}\le 0$ tengsizlikni yeching.
A)$(1;2]$ B)$[1;2)$ C)$[1;2]$ D)$(-\infty;1)$ E)$(-\infty;1]$

3. $\frac{x+1}{x-2}\le 0$ tengsizlikni yeching.
A)$(-\infty;-1]$ B)$[-1;2)$ C)$(-1;2]$ D)$(2;\infty)$
E)$(-\infty;-1)\cup[2;\infty)$

4. $\frac{x-4}{2x+6}\le 0$ tengsizlikning barcha butun sonlardagi yechimlari yig'indisini toping.
A)7 B)6 C)8 D)5 E)4

5. $\frac{(x+2)(x-1)}{x+3}\le 0$ tengsizlikni yeching.
A)$(-\infty;-3)\cup[-2;1]$ B)$(-2;1)$ C)$(-\infty;-3]$
D)$(-\infty;-3]\cup(-2;1]$ E)$(-\infty;-3)\cup(-2;1)$

6. $\frac{(x+3)(x-5)}{x+1}\ge 0$ tengsizlikni yeching.
A)$(3,-1]\cup[5;\infty)$ B)$(-3;-1)\cup[5;\infty)$
C)$[-3;-1)\cup[5;\infty)$ D)$[-3;-1)$ E)$[5;\infty)$

7. Quyidagi tengsizliklardan qaysilari o'zaro teng kuchli?
1)$\frac{x-3}{x+1}\ge 0$; 2)$\frac{x-3}{x^2+1}\ge 0$; 3)$\frac{x-3}{x^2}\ge 0$; 4)$x-3\ge 0$
A)2;3,4 B)1;2,4 C)1,4 D)hammasi E)2,3

8. x ning $\frac{x+5}{(x+6)^2}<0$ tengsizlikni qanoatlantiruvchi eng katta butun qiymatini toping.
A)6 B)–6 C)5 D)–5 E)–7

9. $\frac{(x-4)(x+2)}{(x-1)^2} < 0$ tengsizlikning eng katta va eng kichik butun yechimlari ayirmasini toping. 97-08-22
A)6 B)4 C)5 D)2 E)3

10. $\frac{(-x^2+x-1)(x^2+x-2)}{x^2-7x+12} \ge 0$ tengsizlikning butun yechimlari nechta? 98-03-12
A)4 B)1 C)2 D)3 E)cheksiz ko'p

11. $\frac{x^2-2x+3}{x-1} \ge 0$ tengsizlikni yeching. 98-06-23
A)(1;∞) B)[1;∞) C)(−∞;1) D)(−∞;1] E)Ø

12. $\frac{(x-5)(x+3)}{(x+1)^2} \le 0$ tengsizlikning manfiy butun yechimlari yig'indisini toping. 97-02-23
A)−9 B)−12 C)−5 D)−6 E)−4

13. $\frac{(x+4)(3-x)}{(x-2)^2} > 0$ tengsizlikning eng katta va eng kichik butun yechimlari yig'indisini toping. 97-12-22
A)1 B)−1 C)−2 D)2 E)7

14. $\frac{(x^2+x+1)(x^2+2x-3)}{x^2+3x+2} \le 0$ tegsizlikning butun yechimlari nechta? 98-10-60
A)5 B)4 C)3 D)cheksiz ko'p E)2

15. $\frac{x+2-x^2}{x^3+1} \ge 0$ tengsizlikni yeching. 99-03-13
A)(−∞;2] B)[2;∞) C)(−∞;−1)∪(−1;2] D)(−1;2)
E)(−∞;−1)∪(−1;2)

16. $\frac{(x+3)(x-7)}{2x^2-x+4} < 0$ tengsizlikning eng katta va eng kichik butun yechimlari ayirmasini toping. 99-09-07
A)10 B)9 C)8 D)7 E)11

17. $\frac{x^4-3x^3+2x^2}{30-x^2-x} < 0$ tengsizlikning eng katta butun manfiy va eng kichik butun musbat yechimlari ko'paytmasini toping. 00-04-33
A)−30 B)−35 C)−36 D)−42 E)−48

18. $\frac{-3x^2+4x-5}{2x+3} > 0$ tengsizlikni yeching. 00-06-13
A)(−∞;−1,5) B)(−1,5;2) C)(−4;−1,5) D)(−1,5;−1,2)
E)(−∞;−2,5)

19. $\frac{x^2-4x+3}{x^2-7x+10} \le 0$ tengsizlikning butun musbat yechimlari yig'indisini toping 01-02-27
A)15 B)10 C)6 D)8 E)13

20. $\frac{x^2-4x+5}{x-2} \ge 0$ tengsizlikni yeching. 01-03-36
A)[2;∞) B)(−∞;2) C)(−∞;2] D)(2;∞) E)Ø

21. $\frac{x^2-4x-5}{2x-5}$ kasrning qiymati manfiy bo'ladigan x ning barcha qiymatlarini ko'rsating. 01-10-18
A)(2,5;5) B)(−∞; −1) C)(−∞; −1]U(2,5; 5]
D)(−∞; −1)U(2,5;5) E)(−∞;2,5)

22. $\frac{x^2(x-1)}{x+3} \ge 0$ tengsizlikni yeching. 02-05-13
A)(−3;1] B)(−3;0)∪(0;1] C)(−∞;−3)∪{0}∪(1;+∞)
D)(−∞;−3)∪{0}∪[1;+∞) E)(−∞;−3)∪[1;+∞)

23. $\frac{1-2x-3x^2}{3x-x^2-5}$ ifoda musbat bo'ladigan x ning barcha qiymatlarini toping. 02-06-21
A)$(-\infty;-\frac{1}{2})\cup(\frac{5}{6};\infty)$ B)$(-\infty;\frac{1}{2})\cup(\frac{5}{6};\infty)$
C)$(-\infty;-\frac{5}{6})\cup(\frac{1}{2};\infty)$ D)$(\frac{1}{2};\frac{5}{6})$ E)$(-\infty;-1)\cup(\frac{1}{3};\infty)$

24. $\frac{x(x-1)^2}{(x+2)^3} \le 0$ tengsizlikni yeching. 03-01-07
A)(−1; 0] B)(−2;1] C)(−2;0] D)(−2;0]∪{1}
E)(−2; −1]∪{0}

25. $\frac{(x-1)^2+2x-2}{(x-5)^3} \ge 0$ tengsizlikning [−3; 8] kesmadagi butun sonlardan iborat yechimlari sonini aniqlang. 03-03-24
A)3 B)4 C)5 D)6 E)7

26. $\frac{x^2-13x+36}{x^4+25} \le 0$ tengsizlikning eng katta va eng kichik yechimlari ayirmasini toping. 03-04-14
A)6 B)4 C)5 D)7 E)8

27. $\frac{x^2-x-12}{x^2-2x-35} \le 0$ tengsizlikning butun sonlardan iborat yechimlaridan eng kattasidan eng kichigining ayirmasini toping. 03-07-63
A)10 B)12 C)11 D)9 E)7

28. $\frac{(x+4)^2-8x-25}{(x-6)^2} > 0$ tengsizlikning butun sonlardan iborat yechimlaridan nechtasi [−5; 6] kesmada joylashgan? 03-11-75
A)2 B)3 C)4 D)5 E)6

29. $\frac{1}{x} > x$ tengsizlikni yeching. 95-01-20
A)(−∞;−1)U(0;1) B)[0;1) C)(−1;1) D)Ø E)(−∞;1)

30. $\frac{x^2}{x+3} < x-3$ tengsizlikni yeching. 99-06-30
A)(−∞;−3) B)(−3;3) C)(0;3) D)Ø E)(−∞;∞)

31. $\frac{5x+8}{4-x} < 2$ tengsizlikni yeching 99-07-45
A)(−∞; 0) U (4; ∞) B)(−∞; −4) U (0; 4)
C)[−4; 4] D)Ø E)(−∞; ∞)

32. $1-\frac{6}{x}>\frac{2}{1-x}$ tengsizlikni yeching. 00-04-32

A)(0;1)U(2;3) B)(−∞;0)U(1;2)U(3;∞)
C)(0;1)U(3;∞) D)(−∞;1)U(2;3)U(5;∞) E)(−∞;2)U(3;∞)

33. $x\ge\frac{6}{x-5}$ tengsizlikni qanoatlantiruvchi eng kichik butun musbat yechimning eng kichik butun manfiy yechimga nisbatini toping. 01-01-72

A)−1 B)−2 C)−0,5 D)−4 E)−1,25

34. $\frac{x-1}{x}>\frac{1}{2}$ tengsizlikning eng kichik butun musbat yechimi 10 dan nechtaga kam? 01-02-21

A)3 B)8 C)7 D)10 E)9

35. $\frac{1}{x-1}\le 2$ tengsizlikni yeching. 01-05-22

A)(−∞; 1)U[1,5;∞) B)(1;2] C)(1;2) D)(1;1,5] E)(1;1,5)

36. $\frac{1}{x}<1$ tengsizlikning (−3; 3) oraliqdagi butun yechimlari sonini toping. 02-04-11

A)7 B)5 C)3 D)4 E)2

37. x ning qanday qiymatlarida $y=\frac{3x-1}{x+2}$ funksiyaning qiymatlari 2 dan kichik emas? 02-07-22

A)(−∞;−2)U[5;∞) B)(−2;5] C)[5;∞) D)$(-2;\frac{1}{3}]$ E)[4;5]

38. $\frac{x-10}{2-x}>1$ tengsizlikning eng kichik butun yechimini toping 02-08-07

A)3 B)4 C)1 D)−2 E)2

39. $\frac{x^2-5x+2}{x-3}>x$ tengsizlikni yeching. 02-12-12

A)(−3;1) B)(1;3) C)(−1;3) D)(−∞;1) E)(3;∞)

40. $\frac{2}{x^2-9}<\frac{3}{x^2-16}$ tengsizlikni yeching 03-01-66

A)(−∞;∞) B)(−4,−3)U(3;4)
C)(∞;−4)U(−3; 3)U (4; ∞) D)(−∞; −4)U(4, ∞)
E)(−∞;−4)U(3; 4)U (6; ∞)

41. $\frac{1}{x-2002}\le\frac{x}{x-2002}$ tengsizlikni yeching. 03-05-17

A)$(-\infty;1]\cup(2002;\infty)$ B)(−∞; 1] C)(2002; ∞)
D)[1; 2002) E)(−∞; 0)

42. $\frac{x+1}{x}\le 1$ tengsizlikni qanoatlantiruvchi x ning barcha qiymatlarini toping 03-06-42

A) $-1\le x<0$ B)$x<0$ C)$-1<x<0$ D)$x>0$ E)$x\ge 0$

43. $\frac{8x+19}{(x+3)^2(x^2+5x)}\ge\frac{1}{x^2+3x}$ tengsizlikning butun sonlardan iborat yechimlari nechta? 03-09-01

A)2 B)3 C)4 D)5 E)6

44. x ning $\frac{x+3}{x^2-4}-\frac{1}{x+2}<\frac{2x}{2x-x^2}$ tengsizlikni qanoatlantiruvchi manfiy bo'lmagan butun qiymatlarini toping. 03-10-12

A)1 B)0;1;2 C)1;2;3 D)1;2 E)2;3

45. $\frac{x^2-12x+23}{(x+1)(x-4)}\le-\frac{2}{x-4}$ tengsizlikning butun sonlardan iborat yechimlari nechta? 03-03-13

A)2 B)3 C)4 D)5 E)7

46. Agar $\frac{1}{a}<-1$ bo'lsa, quyidagi ifodalardan qaysi birining qiymati eng katta bo'ladi? 03-04-35

A)$(a-1)^2$ B)$(a-1)^3$ C)a^3-1 D)a^2-1 E)$1-a$

47. $a<0$ da $ax>\frac{1}{x}$ tengsizlikni yeching. 03-05-24

A)(−∞;0) B)$(-\frac{1}{\sqrt{-a}};\infty)$ C)$(-\frac{1}{\sqrt{-a}};\infty)$ D)$(-\frac{1}{\sqrt{a}},0)$ E)$(0,-\frac{1}{\sqrt{a}})$

48. $\begin{cases}\frac{(x+4)(x-5)}{(x-1)^2}\le 0\\ x\ge -6\end{cases}$ tengsizliklar sistemasining butun yechimlari yig'indisini toping. 03-09-14

A)3 B)4 C)−2 D)−1 E)5

49. $\begin{cases}\frac{(x+6)(x-3)}{3x^2-2x+7}\le 0\\ x^2\le 25\end{cases}$ tengsizliklar sistemasining eng katta va eng kichik yechimlari ayirmasini toping. 03-06-15

A)7 B)8 C)9 D)6 E)10

50. $\begin{cases}\frac{x^2+10x+25}{4x-5}\ge 0\\ (x-2)(x^2-6x+9)\le 0\end{cases}$ tengsizliklar sistemasini yeching. 03-10-13

A){−5;3}U(1,25;2] B)(1,25;2] C)(1,25;∞)
D)(−∞; 2] E)[−5; 3]U(1,25; 2]

51. Nechta tub son $3<\frac{5x-1}{2x-3}<5$ tengsizlikning yechimi bo'ladi? 03-01-12

A)0 B)1 C)2 D)3 E)cheksiz ko'p

52. Nechta tub son $2<\frac{x+7}{2x-19}<4$ tengsizlikning yechimi bo'ladi? 03-01-43

A)1 B)13 C)7 D)3 E)5

53. $0<\frac{3x-1}{2x+5}<1$ qo'shtengsizlikni yeching. 03-02-13

A)$(-\frac{5}{2};6)$ B)$(\frac{1}{3};\infty)$ C)$(-\infty;-\frac{5}{2})\cup(\frac{1}{3};6)$
D)$(\frac{1}{3};6)$ E)$(-\frac{5}{2};\infty)$

54. a ning qanday qiymatlarida $1<\frac{3a+10}{a+4}<2$ tengsizlik o'rinli bo'ladi? 03-05-18
A)$(-1,5;4)$ B)$(-7;-1,5)$ C)$(-7;4)$ D)$\varnothing$ E)$(-3;-2)$

55. $4<\frac{16x^2+4x+16}{x^2+1}<15$ tengsizlikning tub sonlardan iborat yechimlari nechta? 03-09-02
A)1 B)2 C)3 D)4 E)cheksiz ko'p

56. a ning qanday qiymatlarida $3x-4y=3$ va $3x-2ay=5$ to'g'ri chiziqlarning kesishish nuqtasi musbat ordinataga ega? 02-11-11
A)$a<2$ B)$a=2$ C)$a>2$ D)$a\in(2;3)$ E)$a>3$

57. k ning qanday qiymatlarida $k(x+1)=5$ tenglamaning ildizi musbat bo'ladi? 97-01-16
A)$(0;\infty)$ B)$(0;5)$ C)$(-5;0)$ D)$(5;\infty)$ E)$(-\infty;\infty)$

58. a ning qanday qiymatida $2ax+3y=3$ va $4x+3y=7$ to'g'ri chiziqlar kesishish nuqtasining abssissasi manfiy bo'ladi? 99-03-10
A)$a<3$ B)$a>3$ C)$a<2$ D)$a>2$ E)$a>1$

59. $(k-2)^2y=k^2-25$ tenglamaning ildizlari manfiy bo'ladigan k ning barcha butun musbat qiymatlari yig'indisini toping. 99-10-04
A)10 B)13 C)11 D)8 E)9

60. k ning qanday qiymatlarida $\frac{4x-1}{x-1}=k+3$ tenglama manfiy yechimga ega bo'ladi? 00-03-13
A)$(-\infty;-2)$ B)$(-\infty;-2)\cup(1;\infty)$ C)$(1;\infty)$
D)$(-2;1)$ E)$(-\infty;-2)\cup(2;\infty)$

61. t ning qanday qiymatlarida $3x-4=2(x-t)$ tenglama musbat ildizga ega? 02-09-20
A)$t>-2$ B)$t<2$ C)$t\le 1$ D)$t\ge 2$ E)$0<t<2$

62. m ning qanday qiymatlarida $4-m=\frac{2}{x-1}$ tenglamaning ildizlari musbat bo'ladi? 02-12-06
A)$(4;6)$ B)$(-\infty;1)\cup(1;4)$ C)$(-\infty;4)\cup(6,\infty)$
D)$(-\infty;2)$ E)$(2;4)$

63. k ning qanday qiymatlarida $\frac{3x+1}{x+1}=k-2$ tenglama manfiy ildizga ega? 03-03-06
A)$(3;5)$ B)$(-\infty;3)\cup(5;\infty)$ C)$(2,4)$
D)$(1;3)$ E)$(-\infty;1)\cup(3;\infty)$

64. m ning qanday qiymatida $\frac{mx+9}{x}\ge -10$ tengsizlikning eng katta manfiy yechimi -3 ga teng bo'ladi? 03-08-12
A)-9 B)-8 C)-7 D)-6 E)-5

65. a ning qanday qiymatlarida $ax-2a=2$ tenglama birdan kichik ildizga ega bo'ladi? 97-06-16
A)$a\in(-2;0)$ B)$a\in(-\infty;0)$ C)$a\in(0;1)$
D)$a\in[1;2]$ E)$a\in R$

66. a ning qanday qiymatlarida $3(x+1)=4+ax$ tenglamaning ildizi -1 dan katta bo'ladi? 02-11-07
A)$(0;\infty)$ B)$(4;\infty)$ C)$(-\infty;0)$ D)$(-\infty;3)$
E)$(-\infty;3)\cup(4;\infty)$

67. a parametrning qanday qiymatlarida $ax^2+2(a+3)x+a+2=0$ tenglamaning ildizlari nomanfiy bo'ladi? 00-10-68
A)$[-2,25;-2]$ B)$[-2,21;-1]$ C)$[1;2]$ D)$(-\infty;-2]$
E)bunday qiymatlar yo'q

68. a ning qanday qiymatlarida $y=x^2-2(a+1)x+1$ parabolaning uchi $y=\frac{3}{4}$ to'g'ri chiziqdan pastda, $y=ax^2-x+a$ parabolaning uchi esa shu to'g'ri chiziqdan yuqorida yotadi? 01-09-40
A)$(-0,5;1)$ B)$(-0,25;0)\cup(1;\infty)$
C)$(-1,5;-0,5)\cup(2;\infty)$ D)$(-1,5;-0,25)$ E)$(-0,25;1)$

69. b ning qanday qiymatlarida $b(2-x)=6$ tenglamaning ildizi manfiy? 97-11-16
A)$b\in(-\infty;0)$ B)$b\in(0;3)$ C)$b\in(-3;0)$
D)$b\in[3;\infty)$ E)$b\in R$

70. $\frac{x^2-5x-14}{x+4}\le 0$ tengsizlikni qanoatlantiruvchi natural sonlar nechta? 03-08-56
A)7 B)8 C)9 D)5 E)6

71. $\frac{x^2-4x+5}{x-3}\ge 0$ tengsizlikni yeching. 2006
A)$(-\infty;3)$ B)$[3;\infty)$ C)$(3;\infty)$ D)$(-\infty;3]$

72. $\frac{(x-4)(x+2)}{(x-3)^2}<0$ tengsizlikning eng katta va eng kichik butun yechimlari ayirmasini toping. 2006
A)4 B)3 C)2 D)5

4-§. Irratsional tengsizliklar.

1. $\sqrt{9-x}\le 2$ tengsizlikni yechimlari Ox o'qida joylashtirilsa, qanday uzunlikdagi kesma hosil bo'ladi? 00-01-24
A)4 B)3,8 C)4,5 D)4,8 E)5

2. $\sqrt{3x-8}<-2$ tengsizlikni yeching. 01-02-20
A)$x<4$ B)$x\in\varnothing$ C)$x>\frac{8}{3}$ D)$x>4$ E)$\left(\frac{8}{3};4\right]$

3. $\sqrt{x+1}<4$ tengsizlikni yeching. 02-01-48
A)$(-\infty;15)$ B)$[0;15]$ C)$[0;15)$ D)$(-1;15]$ E)$[-1;15)$

4. x ning qanday qiymatlarida $y=\sqrt{2x-1}$ funksiyaning qiymatlari 3 dan katta bo'lmaydi? 02-10-14
A)$[0,5;5]$ B)$[-\infty;5]$ C)$(0;3]$ D)$(1;2)$ E)$[0;2]$

5. $\sqrt{x-50}\cdot\sqrt{100-x}>0$ tengsizlik nechta butun yechimga ega? 02-04-26
A)43 ta B)54 ta C)49 ta D)51 ta E)47 ta

6. $\sqrt{3x+10} > \sqrt{6-x}$ tengsizlikni yeching. 00-03-21
A)$[-1;6]$ B)$[-\frac{10}{3};6]$ C)$(-1;6]$
D)$[-\frac{10}{3};-1)\cup(-1;6]$ E)$(-\frac{10}{3};6]$

7. $\sqrt{3x-8} > \sqrt{5-x}$ tengsizlikni yeching. 01-10-19
A)$(\frac{13}{4};\infty)$ B)$\left(\frac{8}{3};5\right)$ C)$(\frac{13}{4};5]$ D)$(\frac{13}{4};5)$ E)$\left(\frac{8}{3};\infty\right)$

8. $\sqrt{x^2-16} < \sqrt{4x+16}$ tengsizlikning eng katta butun va eng kichik butun yechimlari ayirmasini toping. 00-07-23
A)4 B)5 C)2 D)3 E)6

9. $\sqrt{5x-2x^2-42} > 3$ tengsizlikni yeching. 01-12-46
A)$\{-2\}$ B)$\{1\}$ C)$\{2\}$ D)$\varnothing$ E)$\{3\}$

10. $\sqrt{x^2-3x+2} \ge 0$ tengsizlikni qanoatlantiruvchi eng kichik natural sonni toping. 03-08-37
A)1 B)2 C)3 D)5 E)10

11. $\sqrt{\frac{3x-4}{8-x}} > 1$ tengsizlikning nechta butun yechimi bor? 01-05-23
A)4 B)1 C)2 D)3 E)5

12. $\sqrt{\frac{2-3x}{x+4}} > -2$ tengsizlikning eng kichik butun yechimini toping. 03-01-08
A)0 B)−1 C)−2 D)−3 E)−5

13. $\sqrt{\frac{x^2-2}{x}} \le 1$ tengsizlikning butun sonlardan iborat yechimlari nechta? 03-09-09
A)$\varnothing$ B)1 C)2 D)3 E)cheksiz ko'p

14. $\sqrt{\frac{8-x}{x-18}} > -1$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping. 03-11-14
A)125 B)130 C)143 D)136 E)124

15. $\sqrt{\frac{2x-3}{5x+7}} \ge -2$ tengsizlikni yeching. 03-12-16
A)$(-\infty;-1,2]\cup[2,5;\infty)$ B)$(-\infty;-1,4]\cup[1,5;\infty)$
C)$[1,5;4]$ D)$(\infty;-1,4)\cup[1,5;\infty)$
E)$(-\infty;-1,4)\cup[2,5;\infty)$

16. $(x+3)\sqrt{x^2-x-2} \ge 0$ tengsizlikning yechimin ko'rsating. 96-07-34
A)$[-3;\infty)$ B)$[-1;2]$ C)$[-3;-1]\cup[2;\infty)$
D)$[2;\infty)$ E)$(-\infty;-2]\cup[1;\infty)$

17. Quyidagilardan qaysi biri $(x-3)\cdot\sqrt{x^2+x-2} \le 0$ tengsizlikning yechimi? 97-03-34
A)$(-\infty;3]$ B)$(-\infty;-2]\cup[1;3]$ C)$[-2;3]$
D)$[-1;2]\cup[3;\infty)$ E)$[-2;\infty)$

18. $(x-2)\cdot\sqrt{3+2x-x^2} \ge 0$ tengsizlikning yechimini ko'rsating. 97-07-34
A)$[2;\infty)$ B)$[-1;3]$ C)$[3;\infty)$ D)$[2;3]\cup\{-1\}$
E)$\left[2;2\frac{1}{3}\right]$

19. $(x-1)\cdot\sqrt{6+x-x^2} \le 0$ tengsizlikning yechimini ko'rsating. 97-10-34
A)$(-\infty;1]$ B)$[-2;3]$ C)$[-2;1]$ D)$[3;\infty)$ E)$[-3;1]$

20. $(x+3)\sqrt{10-3x-x^2} \ge 0$ tengsizlikni yeching. 02-01-68
A)$[-3;\infty)$ B)$[2;\infty)$ C)$[-3;2]$ D)$\{-5\}\cup[-3,2]$
E)$\{-5\}\cup[-3;\infty)$

21. $x\cdot(x^2+4x+4)\cdot\sqrt{25-x^2} \ge 0$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping. 03-01-67
A)15 B)10 C)8 D)12 E)0

22. $(\sqrt{4-x})^2 \le \frac{21-x^2}{4}$ tengsizlikning butun sonlardan iborat yechimlaridan eng katta va eng kichigining yig'indisini toping. 03-02-38
A)5 B)4 C)3 D)2 E)1

23. $(x+2)\cdot(x^2+10x+25)\cdot\sqrt{49-x^2} \ge 0$ tengsizlikni qanoatlantiruvchi barcha butun sonlarning yig'indisini toping. 03-12-21
A)25 B)13 C)20 D)28 E)21

24. $\frac{x^2-2x-8}{\sqrt{x^2+1}} > 0$ tengsizlikning eng kichik butun musbat va eng katta butun manfiy yechimlari ayirmasini toping. 00-05-38
A)3 B)2 C)8 D)5 E)6

25. $\frac{\sqrt{x+5}}{1-x} < 1$ tengsizlikni eng kichik butun musbat yechimini toping. 00-02-15
A)6 B)3 C)5 D)4 E)2

26. $\frac{\sqrt{2x+7}}{6-3x} \ge 0$ tengsizlikning barcha butun sonlardan iborat yechimlari yig'indisini toping. 01-06-26
A)−4 B)−3 C)4 D)3 E)−5

27. $\frac{\sqrt{x+2}(x-1)^2x^3}{(x+1)^4} < 0$ tengsizlikni qanoatlantiruvchi butun sonlar nechta? 01-10-27
A)$\varnothing$ B)1 C)2 D)3 E)4

28. $\frac{(x-1)^2(x-2)^3}{\sqrt{x+2}} \ge 0$ tengsizlikni yeching 02-06-25
A)$[-3;-2)\cup(-2,1]$ B)$\{1\}\cup[2,\infty)$ C)$\{1\}\cup(-2;\infty)$
D)$(-2;0)\cup\{1\}\cup[2;\infty)$ E)$[2;\infty)$

29. $\frac{\sqrt{3+2x-x^2}}{x-2} \le 0$ tengsizlikning butun sonlardan iborat yechimlari nechta? 02-09-28
A)3 B)4 C)5 D)2 E)7

30. $\frac{(x^2-9)\cdot\sqrt{x+5}}{(x^2-4)\cdot\sqrt{3-x}} \le 0$ tengsizlikni qanoatlantiradigan butun sonlarning yig'indisini toping. 03-10-37
A)8 B)0 C)6 D)–6 E)–8

31. $\frac{\sqrt{6+x-x^2}}{2x+5} \ge \frac{\sqrt{6+x-x^2}}{x+4}$ tengsizlikni yeching. 02-10-12
A)[–2; –1]U{3} B)[–2; 1] C)[1; 3] D)[–2; 3] E)(0; 3]

32. $x-4\sqrt{x}-5 \le 0$ tengsizlikning butun sondan iborat eng kichik va eng katta yechimlari ayirmasini toping. 02-09-26
A)–25 B)–24 C)–27 D)–5 E)–15

33. $\frac{5-\sqrt{x}}{\sqrt{x}-2} > 0$ tengsizlikni qanoatlantiruvchi butun sonlar nechta? 02-12-14
A)20 B)19 C)21 D)2 E)bitta ham yo'q

34. $\sqrt{x+2} > x$ tengsizlikni qanoatlantiruvchi butun sonlar nechta? 98-04-23
A)3 B)2 C)4 D)1 E)5

35. $\sqrt{5-x^2} > x-1$ tengsizlikni qanoatlatiruvchi butun sonlar nechta? 98-12-82
A)5 B)3 C)4 D)2 E)1

36. $\sqrt{x} \ge x-6$ tengsizlikni qanoatlantiruvchi butun sonlarning yig'indisini toping. 03-01-30
A)6 B)15 C)28 D)35 E)45

37. $\sqrt{x-4}-\sqrt{x-7} \ge 1$ tengsizlikning butun sonlardan iborat yechimlari nechta? 03-03-20
A)0 B)1 C)2 D)4 E)cheksiz ko'p

38. $\sqrt{8+2x-x^2} > 6-3x$ tensizlikning butun sonlardan iborat yechimlari nechta? 03-11-73
A)2 B)3 C)4 D)5 E)1

39. Qanday eng kichik butun son $\sqrt{12-x} < 2$ tengsizlikni qanoatlantiradi? 02-12-35
A)8 B)9 C)6 D)10 E)7

5-§. Modulli tengsizliklar.

1. $|x-2| \le 5$ tengsizlik nechta butun yechimga ega? 96-97-08
A)11 B)10 C)8 D)7 E)6

2. $|x-1| \le 2$ tengsizlikni yeching. 96-12-57
A)yechimga ega emas B)$(-\infty; -1]\cup[3; \infty)$ C)$[-1; 3]$ D)$[1; 3]$ E)$(-\infty; 3]$

3. $|3x-7| < 5$ tengsizlikni qanoatlantiradigan natural sonlarning eng kattasi topilsin. 97-01-73
A)4 B)3 C)2 D)1 E)5

4. $|3-x| < 4$ tengsizlik nechta butun yechimga ega? 97-03-08
A)4 B)5 C)6 D)7 E)9

5. $|2x-3| \le 7$ tengsizlikni qanoatlantiruvchi eng katta natural sonni toping. 97-06-76
A)1 B)2 C)3 D)4 E)5

6. $|x+2| \le 3$ tengsizlik nechta butun yechimga ega? 97-07-15
A)5 B)6 C)7 D)4 E)8

7. $|4-x| < 6$ tengsizlik nechta butun yechimga ega? 97-10-08
A)3 B)5 C)8 D)11 E)10

8. $|x-7| \le 1$ tengsizlikning eng kichik natural yechimini toping. 98-05-23
A)5 B)7 C)8 D)6 E)1

9. $|x-6| \le 8$ tengsizlikning eng kichik natural yechimini toping. 99-07-24
A)2 B)7 C)3 D)0 E)1

10. $|x-4| \le 12$ tengsizlikning eng kichik va eng katta butun yechimlari yig'indisini toping. 99-09-18
A)6 B)8 C)–6 D)–8 E)10

11. $|x-2| < 5$ tengsizlikning butun yechimlari yig'indisini toping. 00-08-13
A)18 B)21 C)20 D)19 E)15

12. $|5-2x| \le 3$ tengsizlikning butun yechimlari yig'indisini toping. 01-05-24
A)10 B)15 C)6 D)3 E)5

13. $|8-x| < 4$ tengsizlikning eng katta butun yechimini toping. 01-11-13
A)12 B)10 C)11 D)8 E)9

14. $|3x+8| \le 2$ tengsizlikni qanoatlantiruvchi butun sonlar nechta? 02-01-47
A)1 B)2 C)3 D)4 E)5

15. $\sqrt{x^2-6x+9} < 3$ tengsizlik nechta butun yechimga ega? 99-02-20
A)4 B)6 C)7 D)8 E)5

16. $|x^2-5| < 4$ tengsizlikni yeching. 00-06-06
A)(–3; 3) B)(–3; 0)U(0; 3) C)(–3;–1)U(1;3)
D)(–3; –1) E)(1;3)

17. $|x^2-2| < 1$ tengsizlikni yeching 02-02-09
A) $(-\sqrt{3};-1)\cup(1;\sqrt{3})$ B) $(-\sqrt{3};-1)$ C) $(1;\sqrt{3})$
D) $(-\sqrt{3};\sqrt{3})$ E)$(-1; 1)$

18. $|x^2-3| < 2$ tengsizlikning butun sonlardan iborat yechimlari nechta? 02-11-23
A)2 B)3 C)4 D)5 E)cheksiz ko'p

19. $|x^2-8| < 1$ tengsizlikni yeching. 03-06-51
A) $x < -\sqrt{7}$ B) $x > \sqrt{7}$ C) $-\sqrt{7} < x < \sqrt{7}$
D) $-3 < x < -\sqrt{7}$, $\sqrt{7} < x < 3$ E) $-3 < x < 3$

20. $|x^2-3x| < 10$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping. 03-09-11
A)6 B)7 C)9 D)12 E)16

21. $|x-1| \ge 2$ tensizlikni yeching. 96-03-26
A)$(-\infty; -1]$ B)$[-1; 3]$ C)$(-\infty; 1]\cup[3; \infty)$
D)$[1, 3]$ E)$[-1; -3]$

22. $|x-1| \ge 1$ tengsizlikni yeching. 96-11-27

A)$[0;2]$ B)$(-\infty;0] \cup [2;\infty)$ C)$[-2;0]$ D)$[0,2]$ E)$[-1;2]$

23. $|-2x+1| > 5$ tengsizlikni yeching. 00-08-45

A)$(\infty;-2) \cup (3;\infty)$ B)$(-2;3)$ C)$(-2;\infty)$. D)$(-\infty;3)$ E)$(-\infty;0) \cup (0;\infty)$

24. $|x^2+2x| > 8$ tengsizlikni yeching. 03-06-52

A)$x<-4,\ x>2$ B)$-4<x<2$
C)$x<-4$ D)$x>2$ E)$x>-4$

25. $\sqrt{x^2}+\sqrt[4]{x^4} \le 4$ tengsizlikni yeching. 02-06-23

A)$(-\infty;2]$ B)$[2;\infty)$ C)$[-2;2]$ D)$[-2;\infty)$
E)$[-1;1]$

26. $\frac{2}{|x-4|} \le 1$ tengsizlikni yeching. 01-01-16

A)$[-4;4]$ B)$(-\infty;-4] \cup [4;\infty)$
C)$(-\infty;2] \cup [6;\infty)$ D)$[2;6]$ E)$(-\infty;2] \cup [4;\infty)$

27. $\left|\frac{3}{x-7}\right| > \frac{6}{7}$ tengsizlikning barcha butun yechimlari yig'indisini toping. 01-02-69
A)39 B)45 C)32 D)49 E)42

28. $\left|\frac{3}{x-2}\right| \ge \frac{1}{4}$ tengsizlikning butun sonlardan iborat yechimlaridan eng kattasi va eng kichigining ko'paytmasini toping. 02-09-12
A)42 B)−117 C)−140 D)−130
E)aniqlab bo'lmaydi.

29. Agar $y^2 > x > 0$ bo'lsa, $|x-y^2|+|x+9|-25=0$ tenglik y ning qanday qiymatlarida o'rinli bo'ladi? 98-09-17
A)4 B)±3 C)±4 D)3 E)±2

30. a ning qanday qiymatlarida $|a+2|=-a-2$ tenglik o'rinli bo'ladi? 98-08-08
A)$a=-2$ B)$a \in \varnothing$ C)$a<-2$ D)$a \le -2$
E)$a=-3$

31. $\sqrt{(3x-13)^2}=13-3x$ tenglamaning natural ildizlari nechta? 99-05-15
A)Ø B)1 C)2 D)3 E)4

32. $\sqrt[4]{(2x-7)^4}=7-2x$ tenglamaning natural ildizlari nechta? 00-09-23
A)Ø B)1 C)2 D)3 E)4

33. $|x^2-2x|=2x-x^2$ tenglamaning nechta butun ildizi bor? 99-04-24
A)1 B)2 C)3 D)ildizi yo'q E)cheksiz ko'p

34. $\left|\frac{x^5}{x^4-16}\right| = \frac{x^5}{16-x^4}$ tenglamaning barcha natural yechimlari yig'indisini toping. 98-12-85
A)3 B)1 C)6 D)10 E)15

35. $2|x+3| \le |x-1|$ tengsizlikning butun yechimlari nechta? 98-03-18
A)cheksiz ko'p B)5 C)6 D)10 E)12

36. $2|x-1| \le |x+3|$ tengsizlikning butun yechimlari nechta? 98-10-66
A)6 B)5 C)cheksiz ko'p D)0 E)8

37. $|x+1| > 2|x+2|$ tengsizlikni yeching. 01-12-17
A)$(-2;-1)$ B)$[-3;-1]$ C)$\left(-3;-\frac{5}{3}\right)$ D)$(-3,0)$ E)Ø

38. $|x-4| > |x+4|$ tengsizlikni yeching. 03-06-16
A)$(-4;4)$ B)$(0,4) \cup (4;\infty)$ C)$(-4;\infty)$
D)$(-\infty;-4) \cup (-4;0)$ E)$(-\infty;0)$

39. $|x-4| < |x+4|$ tengsizlikni yeching. 03-07-22
A)$(-4;4)$ B)$(0;4) \cup (4;\infty)$ C)$(0;\infty)$
D)$(-\infty;-4) \cup (-4;0)$ E)$(-\infty;-4)$

40. $\begin{cases} x \ge 3, \\ |x-3| \le 1 \end{cases}$ tengsizliklar sistemasini yeching. 00-01-18
A)$2 \le x \le 3$ B)$-2 \le x \le 4$ C)$3 \le x \le 4$
D)$x \le 4$ E)$x \ge 2$

41. $1 < |x| < 4$ tengsizlikni yeching. 99-01-07
A)$(-\infty;-4) \cup (4;\infty)$ B)$(-4;-1) \cup (1;4)$
C)$(-\infty;-1) \cup (1;\infty)$ D)$(-1;1)$ E)$(-4;4)$

42. $4 \le |x| \le 8$ tengsizlik nechta butun yechimga ega? 99, 04-15
A)12 B)10 C)8 D)6 E)5

43. $\begin{cases} |2x-3| \le 1 \\ 5-0,4x > 0 \end{cases}$ tengsizliklar sistemasini yeching. 02-10-55
A)$[1;2]$ B)$(-\infty;2]$ C)$(-\infty;1] \cup (2;\infty)$ D)$(-0,4;2)$
E)$(0;1]$

44. $1 < |x-2| < 3$ tengsizlikni yeching. 03-05-20
A)$(-1;1) \cup (3;5)$ B)$(-1;1)$ C)$(3;5)$ D)$(-1;5)$
E)$(0,4)$

45. $|x| \cdot (x-\frac{1}{2}) < 0$ tengsizlikni yeching. 98-11-22
A)$(-\infty,\frac{1}{2})$ B)$\left(0,\frac{1}{2}\right)$ C)$(-\infty;0)$
D)$(-\infty,\frac{1}{2}) \cup (\frac{1}{2};\infty)$ E)$(-\infty;0) \cup \left(0;\frac{1}{2}\right)$

46. $|x| \cdot (x-\frac{1}{8}) < 0$ tengsizlikni yeching. 00-10-18
A)$(-\infty;\frac{1}{8})$ B)$(0;\frac{1}{8})$ C)$(-\infty;0)$
D)$(-\infty,\frac{1}{8}) \cup (\frac{1}{8};\infty)$ E)$(-\infty;0) \cup (0;\frac{1}{8})$

47. $x^2-3|x|-4 \le 0$ tengsizlikni qanoatlantiruvchi butun sonlarning yig'indisini aniqlang. 01-03-07
A)0 B)2 C)3 D)1 E)4

48. $x^2-2|x|<3$ tengsizlikning butun sonlardan iborat yechimlari nechta? 01-11-07
A)7 B)6 C)5 D)4 E)3

49. $\sqrt{|x-3|+1} > 2|x-3|-1$ tengsizlikni yeching. 02-12-15

A)(1;1,5) B)$(\frac{7}{4};\frac{17}{4})$ C)(0;$\frac{17}{4}$) D)(2;5) E)$(\frac{9}{4};\frac{21}{4})$

50. $\sqrt{5-|2x-1|} < 2$ tengsizlikning butun sonlardan iborat yechimlari sonini toping. 03-03-30

A)2 B)3 C)4 D)6 E)cheksiz ko'p

51. $\frac{|x|-10}{2-|x|} \geq 0$ tengsizlikning eng katta va eng kichik butun musbat yechimlarining ayirmasini toping. 99-10-10

A)6 B)8 C)9 D)7 E)5

52. a ning qanday qiymatlarida $ax \leq |a|$ tengsizlikning yechimlari to'plami $[-1;+\infty)$ oraliqdan iborat bo'ladi? 97-04-26

A)$a<0$ B)$a>0$ C)$a \in (-\infty;\ \infty)$ D)$a=0$ E)$a\leq 0$

53. a ning qanday qiymatlarida $a^6 x \geq |a|^3$ tengsizlikning yechimlari $x \geq \frac{1}{8}$ bo'ladi? 97-09-86

A)$a>0$ B)$a\leq 0$ C)$a\neq 0$ D)$-2;2$ E)± 4

54. $|x-3| \leq 6-x$ tengsizlik nechta yechimga ega? 00-03-24

A)0 B)1 C)2 D)4 E)cheksiz ko'p

55. $x^2-7x+12 < |x-4|$ tengsizlikni yeching. 02-10-11

A)(2; 4) B)Ø C)(3; 4) D)(2; 3) E)$(-\infty;$ 3)$\cup$(4; ∞)

56. $\sqrt{|x|-2} < \frac{2|x|}{x}$ tengsizlikning butun sonlardan iborat nechta yechimi bor? 03-04-16

A)6 B)5 C)3 D)4 E)7

57. $\frac{|x-3|}{x^2-5x+6} \geq 2$ tengsizlikni yeching. 00-10-70

A)$[\frac{3}{2};2)$ B)$(\frac{5}{2};4]$ C)Ø D)$[-10;\ 10]$ E)$(-\frac{5}{2};0)$

58. $|x+1|+|x-4| > 7$ tengsizlikni qanoatlantiruvchi x ning eng kichik natural qiymatini toping. 99-08-04

A)1 B)3 C)6 D)5 E)2

6-§. Baholash usuli.

1. Quyidagi mulohazalardan qaysi biri to'g'ri?

A)$6x^4+3x^3+8=0$ tenglamaning ildizi $x=3$ bo'lishi mumkin.

B)$3x^6+4x=-9$ tenglama musbat ildizga ega.

C)$12x^3+7x=2$ tenglama manfiy ildizga ega.

D)$x^2-2x-8=0$ tenglama ildizlari qarama-qarshi ishorali.

E)$p\neq 0$ da $x^2-px+p^2=0$ tenglama ikkita musbat ildizga ega. 98-10-45

2. $\left(x^2-2\right)^2 = 5x^3+7x$ tenglamaning manfiy ildizlari nechta? 98-12-24

A)1 ta B)2 ta C)3 ta D)4 ta E)manfiy ildizi yo'q

3. $2x+5x^3=x^8-4x^4+4$ tenglama nechta manfiy ildizga ega? 98-12-96

A)Ø B)1 C)2 D)3 E)4

4. Agar $(x-4)^2+(x-y^2)^2=0$ bo'lsa, $x+2y$ nechaga teng. 97-08-11

A)0 B)4 C)6 D)8 E)0 yoki 8

5. Agar $(a-|b|)^2+(a-2)^2=0$ bo'lsa, $2a-3b$ ning qiymatini toping. 97-12-10

A)-2 B)10 C)2 va 10 D)-2 va 10 E)-10

6. Agar x va y sonlari $x^2+y^2+(y-1)^2=2xy$ tenglikni qanoatlantirsa, $x+y$ qanchaga teng bo'ladi? 98-11-61

A)4 B)1 C)3 D)2 E)5

7. Agar $a^2-4a+5+b^2-2b=0$ bo'lsa, $(a+b)^3$ ning qiymatini toping. 00-01-11

A)26 B)27 C)28 D)25 E)24

8. $2x^2+2xy+2y^2+2x-2y+3$ ko'phad eng kichik qiymatga erishganda, xy ning qiymati qanday bo'ladi? 00-01-17

A)1 B)-2 C)2 D)1,5 E)-1

9. $4a^2+9b^2+16c^2-4a-6b-8c+3=0$ bo'lsa, abc ko'paytmaga teskari sonni toping. 00-02-07

A)$\frac{1}{24}$ B)12 C)48 D)24 E)$-\frac{1}{12}$

10. $9(x^4+y^4)-6(x^2+y^2)+2=0$ ekanligini bilgan holda, x^2+y^2 ning qiymatini hisoblang. 00-09-39

A)$\frac{1}{3}$ B)1 C)$\frac{2}{3}$ D)$\frac{4}{3}$ E)3

11. Agar $16a^2+9b^2+4c^2+3=8a+6b+4c$ bo'lsa, $a+b+c$ ga teskari sonni toping 02-09-58

A)$-1\frac{1}{12}$ B)$\frac{12}{13}$ C)$\frac{12}{11}$ D)$-\frac{11}{12}$ E)$-\frac{12}{13}$

12. $x^2+y^2+2(2x-3y)+|z-xy|+13=0$

$x+y+z-?$ 98-12-90

A)8 B)11 C)-5 D)-7 E)aniqlab bo'lmaydi

13. Agar x va z orasida $x^2+z^2+x+z+\frac{1}{2}=0$ munosabat o'rinli bo'lsa, xz ning qiymati qancha bo'ladi? 98-04-20

A)0,25 B)0,4 C)0,5 D)1 E)$-0,8$

14. Agar $8(x^4+y^4)-4(x^2+y^2)+1=0$ bo'lsa, $|x|+|y|$ ning qiymatini toping. 99-05-33

A)1 B)$\frac{1}{2}$ C)$\frac{1}{4}$ D)2 E)$\frac{1}{16}$

15. $m,\ n,\ k \in N$, $m^2+2n^2-2nk=25$,

$2mn-k^2=25$. $\frac{(m+n)^2}{2k}$ ni hisoblang. 99-05-10

A)1 B)2 C)5 D)10 E)15

22. Isbalgan uchtasi bir to'g'ri chiziqda yotmaydigan to'rtta nuqtani juft-juft ravishda tutashtirish natijasida necha kesma hosil bo'ladi? 01-02-03
A)4 B)5 C)6 D)7 E)8

23. 36 yoshdagi onaning yoshi 4 ta bolalari yoshlari yig'indisidan 3 marta ortiq. Necha yildan keyin onaning yoshi bolalari yoshlarining yig'indisiga teng bo'ladi? 02-07-30
A)8 B)9 C)10 B)7 E)12

24. Klubning zalida 320 o'rin bo'lib, qatorlar bo'yicha bir xil taqsimlangan. Yana bir qator qo'yilib, har bir qatordagi o'rinlar sonini 4 taga orttirilgandan keyin zalda 420 o'rin bo'ldi. Endi zaldagi qatorlar soni nechta bo'ldi? (qatorlar soni 15 dan kam emas) 02-10-08
A)20 B)18 C)16 D)21 E)24

2-§. Sonlar nazariiasiga doir masalalar.

1. x, y – raqamlar; xy va $8y$ esa ikki xonali sonlar. Agar $xy \cdot 6 = 8y$ bo'lsa, $x + y$ ning qiymatini hisoblang. 99-04-06
A)9 B)4 C)6 D)8 E)5

2. Raqamlarining yig'indisidan 3 marta katta, raqamlari kvadratlarining yig'indisi esa 53 ga teng bo'lgan ikki xonali sonning kvadratini toping. 98-05-11
A)2500 B)961 C)529 D)7056 E)729

3. A, B – raqamlar; AB va $5A$ esa ikki xonali sonlar. Agar $AB \cdot 3 = 5A$ bo'lsa, $A^2 + B^2$ ning qiymati nechaga teng bo'ladi? 98-12-07
A)65 B)13 C)50 D)37 E)26

4. Ikki xonali sonning raqamlari yig'indisi 6 ga teng. Agar bu songa 18 qo'shilsa, berilgan sonning raqamlari o'rinlari almashtirib yozishdan hosil bo'lgan songa teng son hosil bo'ladi. Berilgan sonni toping. 99-02-08
A)15 B)60 C)51 D)24 E)33

5. $\overline{abc} + \overline{dec} = \overline{fkmc}$ ($\overline{abc}$ va $\overline{dec}$ – uch xonali sonlar; $\overline{fkmc}$ – to'rt xonali son). 99-05-06
$f^{a+d} + (b+d)^c$ ni hisoblang
A)aniqlab bo'lmaydi B)1 C)2 D)3 E)4

6. Agar a, b, c va d turli raqamlar bo'lib, $a + b + c = 7$, $(a+b)^2 = d$ va $a \cdot b \cdot c \neq 0$ bo'lsa, $\frac{c^2 - c}{a + b}$ ning qiymatini toping. 00-04-14
A)aniqlab bo'lmaydi B)1 C)2 D)3 E)4

7. Ikki xonali son o'zining raqamlari yig'indisidan 4 marta katta. Raqamlari kvadratlarining yig'indisi 5 ga teng. Shu ikki xonali sonning kvadratini hisoblang. 99-07-13
A)441 B)169 C)121 D)196 E)144

8. Raqamlari yig'indisining uchlanganiga teng ikki xonali sonni toping. 01-02-05
A)17 B)21 C)13 D)35 E)27

9. Raqamlarining o'rni almashtirilganda, qiymati 75% ga ortadigan ikki xonali natural sonlar nechta? 01-06-08
A)1 B)2 C)3 D)4 E)6

10. Ikki natural sonning yig'indisi 462 ga teng. Ulardan birining oxirgi raqami 0 bilan tugaydi. Agar bu nol o'chirilsa, to'rtinchi son hosil bo'ladi. Berilgan sonlardan kichigini toping.
A)46 B)14 C)42 D)28 E)34

11. Ikki xonali sonning o'ng tomoniga 0 raqamni yozilsa, berilgan sonning yarmi bilan 323 ning yig'indisiga teng bo'lgan son hosil bo'ladi. Berilgan sonni toping.
A)34 B)14 C)24 D)44 E)34

12. Biror sonni 2 ga bo'lsak, bo'linma berilgan sondan 4 taga katta chiqadi. Berilgan sonni toping.
A)4 B)6 C)8 D)-8 E)-10

13. Ikki xonali sonni uning raqamlari yig'indisiga bo'lganda, bo'linma 3 ga, qoldiq 7 ga teng chiqdi. Berilgan sonni toping.
A)38 B)26 C)25 D)35 E)37

14. Raqamlarning yig'indisiga bo'lganda, bo'linmasi 4 ga va qoldig'i noliga teng bo'ladigan ikki xonali sonlar nechta?
A)2 B)3 C)4 D)5 E)6

15. Kommersant a ta kostyumni b so'mdan sotib oldi va ularning har birini bir xil bahoda sotdi. Natijada u c so'm foyda qildi. Kommersant kostyumlarni necha so'mdan sotgan?
A) $\frac{ab+c}{a}$ B) $\frac{a(b+c)}{c}$ C) $\frac{c}{a}$ D) $ab+c$
E) $\frac{ab-c}{b}$

16. Kasr surati va maxrajining yig'indisi 23 ga teng. Surati maxrajidan 9 ta kam. Kasrni toping.
A) $\frac{7}{16}$ B) $\frac{8}{15}$ C) $\frac{16}{7}$ D) $\frac{10}{13}$ E) $\frac{11}{12}$

17. Kasrning maxraji suratidan 4 birlik ortiq. Agar kasrning surati va maxraji 1 birlik ortirilsa, $\frac{1}{2}$ soni hosil bo'ladi. Berilgan kasrning kvadratini toping.
A) $\frac{25}{81}$ B) $\frac{49}{81}$ C) $\frac{9}{49}$ D) $\frac{121}{125}$ E) $\frac{21}{25}$

18. Qishloqda bolalar kattalardan ikki marta ko'p, nafaqaxo'rlar esa aholidan 3 marta kam. Agar 15 sonining o'ng va chap tomoniga bir xil raqam yozilsa, qishloq aholisining soni hosil bo'ladi. Bu qanday raqam?
A)2 B)3 C)4 D)6 E)8

19. Lagerda dam olayotgan o'g'il bolalar va qizlarning soni teng. 13 yoshgacha bo'lgan bolalar soni 13 yoshdan katta bolalardan 2 marta ko'p. Agar 4 sonining o'ng va chap tomoniga bir hil raqam yozilsa, lagerdagi bolalar soni hosil bo'ladi. Bu qanday raqam?
A)2 B)3 C)4 D)6 E)8

20. Qanday son $\frac{2}{5}$ qismining $\frac{2}{5}$ qismidan 2 ayirilsa, 6 soni hosil bo'ladi
A)20 B)50 C)25 D)15 E)18

21. Ikki sonningo'rta arifmetigi 7 ga, kvadratlarining ayirmasi 14 ga teng. Shu ikki son kvadratlarining yig'indisini toping. 01-09-16
A)98,5 B)56,25 C)42,25 D)96,5 E)99,5

22. Ikki son o'rta geometrigining o'rta arifmetigiga nisbati 3:5 kabi. Shu sonlardan kichigining kattasiga nisbatini toping. 01-12-16
A)1:9 B)9:25 C)3:5 D)4:15 E)2:9

23. Ikki sonning yig'indisi 6 ga, kvadratlarining ayirmasi esa 48 ga teng. Shu sonlarning ko'paytmasini toping. 03-03-01
A)8 B)–8 C)7 D)–7 E)12

24. Ikki musbat sondan biri ikkinchisidan 60% ga katta. Shu sonlarning ko'paytmasi 1000 ga teng bo'lsa, ularning yig'indisini toping. 03-10-25
A)100 B)50 C)75 D)65 E) 55

25. Ikki sonning yig'indisi 18 ga, ko'paytmasi esa 61 ga teng. Shu sonlar kvadratlari ayirmasinining modulini toping. 03-10-26
A) $70\sqrt{3}$ B) $72\sqrt{5}$ C) $64\sqrt{2}$ D) $76\sqrt{5}$ E) $80\sqrt{2}$

26. Ikki sonning ko'paytmasi ularning yig'indisidan 29 ga ayirmasidan 41 ga ortiq. Shu ikki sondan birini toping. 03-12-05
A)7 B)8 C)9 D)10
E)To'g'ri javob keltirilmagan

27. Ikki sonning ayirmasi $\sqrt{7}$ ga teng, ko'paytmasi esa 4,5 ga teng. Shu ikki sonning yig'indisini toping. 03-12-06
A) ± 4 B)5 C) ± 5 D) $\sqrt{11}$ E) $\pm\sqrt{15}$

28. Rustam, Qodir va Azim pul yig'ishib, 2625 so'mga koptok sotib olishdi. Agar ulardan har biri qolgan ikkitasi qo'shgan pulning yarmidan ko'p bo'lmagan pul qo'shgan bo'lsa, Rustam qancha pul qo'shgan? 03-01-62
A)aniqlab bo'lmaydi B)950 C)825 D)875 E)975

29. Qisqarmaydigan oddiy kasrning maxraji suratidan 6 birlikka katta. Agar kasrning surat va maxrajiga 5 ni qo'shsak, hosil bo'lgan kasrning qiymati $\frac{1}{2}$ ga teng bo'ladi. Berilgan kasrning suratini toping. 98-11-53
A)5 B)7 C)6 D)12 E)1

30. $32 < a < 92$ shartni qanoatlantiruvchi ikki xonali a sonning birinchi raqami o'chirilganda, u 31 marta kamaydi. O'chirilgan raqam nechaga teng? 00-02-02
A)5 B)4 C)6 D)7 E)8

31. Raqamlarining o'rinlarini almashtirganda, qiymati 9 ga ortadigan nechta ikki xonali natural son bor? 00-06-04
A)5 B)6 C)7 D)8 E)4

32. $\overline{ABC} + \overline{MN} = \overline{FEDP}$. ($\overline{MN}$ - ikki xonali son, $\overline{ABC}$ - uch xonali son, $\overline{FEDP}$ - to'rt xonali son). $F^{M+N} + A^{F}$ ni hisoblang. 00-09-15
A)aniqlab bo'lmaydi B)1 C)2 D)9 E)10

33. Kasrning suratiga 2 qo'shilsa, kasr 1 ga maxrajiga 3 qo'shilsa, u $\frac{1}{2}$ ga teng bo'ladi? Shu kasrning $\frac{3}{5}$ qismini toping. 00-10-81
A) $\frac{3}{7}$ B) $\frac{4}{7}$ C) $\frac{3}{5}$ D) $\frac{3}{4}$ E) $\frac{3}{10}$

34. Kasr qisqartirilgandan so'ng $\frac{4}{11}$ ga teng bo'ldi. U kasrning surat va maxrajidan 2 ayrilsa, qiymati $\frac{37}{114}$ ga teng bo'ladi. Berilgan kasrning maxraji suratidan nechta ortiq? 02-03-07
A)22 B)28 C)30 D)34 E)26

35. Qanday son $\frac{2}{5}$ qismining $\frac{2}{5}$ qismiga 2 qo'shilsa, 6 soni hosil bo'ladi. 03-07-09
A)20 B)50 C)25 D)15 E)18

36. Ikki sonning yig'indisi $2\sqrt{5}$ ga, ko'paytmasi esa 1,75 ga teng. Shu sonlardan kattasi kichigidan qanchaga katta? 03-10-18
A) $\sqrt{7}$ B) $\sqrt{15}$ C) $\sqrt{13}$ D) $\sqrt{17}$ E) $\sqrt{21}$

37. Ikki xonali son bilan uning raqamlari o'rinlarini almashtirishdan hosil bo'lgan son ayirmasi quyidagilardan qaysi biriga qoldiqsiz bo'linadi? 98-12-61
A)5 B)11 C)9 D)4 E)6

38. Qisqarmaydigan oddiy kasrning maxraji suratidan 6 birlikka katta. Agar kasrning surat va maxrajiga 5 ni qo'shsak, hosil bo'lgan kasrning qiymati $\frac{4}{5}$ ga teng bo'ladi. Berilgan kasrning suratini toping. 2006
A)7 B)23 C)13 D)19

3-§. Harakatga doir masalalar.

1. Uzunligi 400 m bo'lgan poezd uzunligi 800 m bo'lgan tunneldan 1 min da o'tib ketdi. Poezdning tezligini toping (m/s). 96-13-09
A)22 B)30 C)15 D)25 E)20

2. Uzunligi 400 m bo'lgan poyezd uzunligi 500 m bo'lgan tunneldan 30 s da o'tib ketdi. Poezdning tezligini toping (m/s). 96-03-69
A)35 B)30 C)40 D)45 E)25

3. Poezdning uzunligi 800 m. Poezdning ustun yonidan 40 s da o'tib ketgani ma'lum bo'lsa, tezligini toping (m/s). 96-09-09
A)30 B)15 C)25 D)20 E)22

4. Uzunligi 600 m bo'lgan poezd uzunligi 1200 m bo'lgan tunneldan 1min da o'tib ketdi. Poezdning tezligini toping. 96-12-67
A)35 B)40 C)25 D)30 E)20

5. Poyezd uzunligi 500 m bo'lgan ko'prikdan 1 minutda,semafor yonidan shu tezlikda 20 sekundda o'tadi. Poyezdning uzunligini toping 01-02-61
A)200 B)150 C)250 D)175 E)125

6. Poyezd yo'lda 30 min to'xtab qoldi. Poyezd jadval bo'yicha yetib kelishi uchun mashinist 80 km masofada tezlikni 8 km/soatga oshirdi. Poyezd jadval bo'yicha qanday tezlik bilan yurishi kerak edi? 01-10-14
A)40 B)32 C)35 D)30 E) 36

7. Aerodromdan bir vaqtning o'zida ikkita samolyot biri g'arbga, ikkinchisi janubga uchib ketdi. Ikki soatdan keyin ular orasidagi masofa 2000 km ga teng bo'ldi. Agar samolyotlardan birining tezligi boshqasi tezligining 75% iga teng bo'lsa, ularning tezliklari (km/soat) yig'indisini toping. 02-05-16
A)1000 B)800 C)1200 D)1400 E)1500

8. Motosiklchi yo'lga 5 minut kechikib chiqdi. Manzilga o'z vaqtida yetib olish uchun u tezlikni 10 km/soatga oshirdi. Agar masofa 25 km bo'lsa, motosiklchi qanday tezlik (km/soat) bilan harakatlangan? 02-09-04
A)50 B)60 C)40 D)55 E)48

9. A va B stansiyalar orasidagi masofa 120 *km*. A stansiyadan B ga qarab yuk poyezdi yo'lga chiqdi, oradan 30 minut o'tgach, B stansiyadan A ga qarab yo'lovchi poyezdi yo'lga chiqdi. Agar bu poyezdlar yo'lning o'rtasida uchrashgan bo'lsa va yo'lovchi poyezdining tezligi yuk poyezdinikidan 6 km/soat ko'p bo'lsa, yo'lovchi poyezdining tezligi qanchaga teng bo'ladi? 01-01-14
A)24 B)25 C)27 D)30 E)32

10. Ikki shahardan bir vaqtning o'zida turli tezlik bilan ikkita avtomobil bir-biriga qarab yo'lga chiqdi. Avtomobillarning har biri uchrashish joyigacha bo'lgan masofaning yarmini bosib o'tgandan keyin, haydovchilar tezlikni 1,5 baravar oshirishdi, natijada avtomobillar belgilangan muddatdan 1 soat oldin uchrashishdi. Harakat boshlangandan necha soatdan keyin avtomobillar uchrashishdi? 00-04-18
A)3 B)4 C)5 D)6 E)aniqlab bo'lmaydi

11. Motorli qayiqning daryo oqimi bo'yicha tezligi 21 km/soat dan ortiq va 23 km/soat dan kam. Oqimga qarshi tezligi esa 19 km/soatdan ortiq va 21 km/soatdan kam. Qayiqning turg'un suvdagi tezligi qanday oraliqda bo'ladi? 01-09-34
A)(18;20) B)(19;21) C)(18;19) D)(20;21) E)(20; 22)

12. Paroxod daryo oqimi bo'ylab 48 km va oqimga qarshi shuncha masofani 5 soatda bosib o'tdi. Agar daryo oqimining tezligi soatiga 4 km bo'lsa, paroxodning turg'un suvdagi tezligini toping. 03-05-10
A)12 B)16 C)20 D)24 E)18

13. Daryo oqimi bo'yicha motorli qayiqda 28km va oqimga qarshi 25 km o'tildi. Bunda butun o'tilgan yo'lga sarflangan vaqt turg'un suvda 54 km ni o'tish uchun ketgan vaqtga teng. Agar daryo oqimining tezligi 2 km/soat bo'lsa, motorli qayiqning turg'un suvdagi tezligini toping. 05-06-49
A)10 B)12 C)8 D)11 E)15

14. Yo'lovchi metroning harakatlanayotgan eskalatorida to'xtab turib 56 s da, yurib esa 24 s da pastga tushadi. Yo'lovchi to xtab turgan eskalatorda xuddi shunday tezlik bilan yursa, necha sekundda pastga tushadi? 01-09-37
A)40 B)42 C)41 D)44 E)43

15. Kishi harakatsiz eskalatorda 4 minutda, harakatlanayotgan eskalatorda esa 48 sekundda yuqoriga ko'tariladi. Shu kishi harakatdagi eskalatorda to'xtab turgan holda necha minutda yuqoriga ko'tariladi?
A)1 B)1,2 C)1,5 D)1,8 E)2

16. Paroxod oqim bo'yicha A dan B ga 9 sutkada borib, B dan A ga 15 sutkada qaytadi. A dan B ga sol necha sutkada boradi?
A)45 B)15 C)22,5 D)18 E)30

17. Uzunligi 200m bo'lgan poyezd balandligi 40 m bo'lgan ustun yonidan 50 sekundda o'tib ketdi. Uzunligi 520 m bo'lgan ko'prikdan shu poyezd o'sha tezlik bilan necha minutda o'tib ketadi?
A)2 B)2,5 C)3 D)4 E)4,2

4-§. Bajarilgan ishga doir masalalar.

1. Qadimiy masala. Meshdagi suv Anvarning o'ziga 35 kunga, akasi ikkalasiga esa 10 kunga yetadi. Meshdagi suv Anvarning akasiga necha kunga yetadi?
A)20 B)14 C)16 D)15 E)18

2. Qadimiy masala. Meshdagi suv Anvarning o'ziga 20 kunga, ukasiga esa 60 kunga yetadi. Meshdagi suv ikkalasiga necha kunga yetadi?
A)15 B)14 C)12 D)16 E)13

3. Qadimiy masala. Meshdagi suv Anvarning o'ziga 14 kunga, ukasi ikkalasiga esa 10 kunga yetadi. Meshdagi suv Anvarning ukasiga necha kunga yetadi?
A)35 B)39 C)28 D)26 E)32

4. Qadimiy masala. Meshdagi suv Anvarning o'ziga 14 kunga, ukasiga esa 35 kunga yetadi. Meshdagi suv ikkalasiga necha kunga yetadi?
A)12 B)10 C)8 D)9 E)7

5. Hovuzdagi suv 2 quvur orqali chiqariladi. Birinchi quvur to'la hovuzni 30 minutda, ikkala quvur birgalikda uni 18 minutda bo'shatadi. Ikkinchi quvur to'la hovuzni necha minutda bo'shatadi?
A)50 B)45 C)42 D)48 E)52

6. Birinchi quvur hovuzni 2 soatda to'ldiradi, ikkinchisi esa uch marta tezroq. Ikkala quvurlar birgalikda hovuzni qancha vaqtda to'ldiradi?
A)45 min B)40 min C)1/2 soat D)25 min E)35 min

7. Birinchi quvur hovuzni 3 soatda to'ldiradi, ikkinchisi esa 5 soatda. Ikkala quvur birgalikda hovuzni qancha vaqtda to'ldiradi?
A) $1\frac{7}{8}$ B) $2\frac{1}{2}$ C) $2\frac{1}{5}$ D) $1\frac{4}{5}$ E)2

8. Hovuzga 2 ta quvur o'tkazilgan. Birinchi quvur bo'sh hovuzni 10 soatda to'ldiradi, ikkinchisi esa to'la hovuzni 15 soatda bo'shatadi. Hovuz bo'sh bo'lgan vaqtda ikkala quvur birdaniga ochilsa, hovuz necha soatdan keyin to'ladi?
A)25 B)28 C)30 D)32 E)24

9. Usta muayyan ishni 12 kunda, uning shogirdi esa 30 kunda bajaradi. Agar 3 ta usta va 5 ta shogird birga ishlasalar, o'sha ishni necha kunda bajarishadi? 00-04-19
A)2,4 B)3,6 C)2,5 D)1,2 E)2,8

10. Biror topshiriqni usta 20 kunda, shogird 30 kunda bajaradi. Ular birgalikda ishlasa, bu topshiriqni necha kunda bajarishadi? 02-01-32
A)10 B)12 C)14 D)15 E)16

11. Hovuzga uchta quvur o'tkazilgan bo'lib, birinchi va ikkinchi quvurlar birgalikda hovuzni 12 soatda, birinchi va uchinchi quvurlar birgalikda hovuzni 15 soatda, ikkinchi va uchinchi quvurlar birgalikda hovuzni 20 soatda to'ldiradi. Uchala quvur birgalikda ochilsa, hovuz necha soatda to'ladi? 03-08-23
A)10 B)8 C)9 D)11 E)7

12. Muayyan ishni bajarishga bir ishchi 3 soat, ikkinchi ishchi esa 6 soat vaqt sarflaydi. Birinchi ishchi 1 soat ishlaganda keyin, unga ikkinchi ishchi qo'shildi. Ikkala ishchi birgalikda qolgan ishni necha soatda tugatishadi? 00-07-09
A)2 soat 30 min B)1 soat 40 min
C)1 soat 20 min D)2 soat E)1 soat 30 min

13. Birinchi va uchinchi ishchi birgalikda ikkinchi ishchiga qaraganda 2 marta ko'p, ikkinchi va uchinchi ishchi birgalikda birinchi ishchiga qaraganda 3 marta ko'p detal tayyorlashdi. Qaysi ishchi ko'p detal tayyorlagan? 01-02-63
A)aniqlab bo'lmaydi B)birinchi
C)ikkinchi D)uchinchi
E)uchala ishchining tayyorlagan detallari soni teng.

14. 12 ta ishchi ma'lum miqdordagi ishni 4 soatda bajaradi. Xuddi shu ishni 3 soatda bajarish uchun necha ishchi kerak? 07-06-18
A)9 B)15 C)16 D)14 E)8

15. Bir kombayn daladagi hosilni 15 soatda, boshqasi esa shu hosilni 10 soatda olishi mumkin. Ikkala kombayn birgalikda hosilni qancha soatda yig'ib olishi mumkin? 98-10-11
A)7 B)8 C)5,5 D)5 E)6

16. Bir ishchi buyurtmani 6 soatda,boshqasi esa 10 soatda bajaradi (tugatadi). Ular birgalikda 3 soat ishlaganlaridan keyin ishning qancha qismi bajarilmay qolgan bo'ladi? 01-06-07
A)$\frac{1}{4}$ B)$\frac{1}{3}$ C)$\frac{1}{5}$ D)$\frac{2}{5}$ E)$\frac{4}{5}$

17. Birinchi brigada ishni 24 kunda, ikkinchisi esa 16 kunda tamomlay oladi. Agar birinchi brigadaga ikkinchi brigada 4 kun yordamlashsa, birinchi brigada ishni necha kunda tamomlay oladi? 01-10-15
A)12 B)14 C)15 D)16 E)18

18. Mehnat unumdorligi bir xil bo'lgan 2 ta ekskavator 35 m kanal qazidi. Birinchi ekskavator ikkinchiksiga qaraganda uzunligi $1\frac{1}{2}$ marta ko'p kanal qazidi. Ikkinchi ekskavator necha m kanal qazigan? 03-06-28
A)13 B)$13\frac{1}{2}$ C)14 D)$14\frac{1}{2}$ E)15

19. Binoni 3 ta bo'yoqchi birgalikda bo'yadi. Birinchisi binoning $\frac{5}{13}$ qismi yuzasini bo'yadi. ikkinchisi esa, uchinchisiga nisbatan 3 marta ko'p yuzani bo'yadi. Uchinchi bo'yoqchi qancha qism yuzani bo'yagan? 03-06-32
A)$\frac{1}{18}$ B)$\frac{1}{13}$ C)$\frac{1}{9}$ D)$\frac{2}{13}$ E)$\frac{1}{6}$

20. Ikkita ishchi birgalikda ishlab, ma'lum ishni 12 kunda tamomlaydi. Agar ishchilarning birtasi shu ishning yarmini bajargandan keyin, ikkinchi ishchi qolgan yarmini bajarsa, shu ishni 25 kunda tamomlashi mumkin. Ishchilardan biri boshqasiga qaraganda necha marta tez ishlaydi? 03-09-07
A)1,2 B)1,5 C)1,6 D)1,8 E)2,0

21. Eski traktor maydonni 6 soatda, yangisi esa 4 soatda haydaydi. Shu maydonni 3 ta eski va 2 ta yangi traktor qancha vaqtda haydaydi? 03-10-24
A)1 soatda B)1,5 soatda C)2 soatda D)2,5 soatda E)45 minutda

22. Mehnat unumdorligi bir xil bo'lgan 9 kishi ma'lum hajmdagi ishni 15 kunda tugatishdi. 12 kishi o'shancha mehnat unumdorligi bilan ishlasa, o'sha hajmdagi ishni necha kunda tugatishi mumkin? 03-12-46
A)20 B)$18\frac{1}{2}$ C)$14\frac{1}{4}$ D)$12\frac{3}{4}$ E)$11\frac{1}{4}$

23. Uzunligi 4 km bo'lgan ko'prikdan mashina yuk bilan o'tgandagi vaqt, shu ko'prikdan qaytishda yuksiz o'tgandagi vaqtdan 2 minut ko'p. Mashinaning yuk bilan va yuksiz paytdagi tezliklari orasidagi farq 20 km/soatga teng bo'lsa, uning tezliklarini toping. 02-12-04
A)30 va 50 B)35 va 55 C)45 va 65 D)42 va 62 E)40 va 60

24. 9,6 t yukni tushirish uchun bir necha ishchi jo'natildi. Lekin ulardan 2 tasi boshqa ishga yuborildi. Shu sababli qolgan har bir ishchi 0,24 t ko'p yuk tashidi. Agar har bir ishchi bir xil miqdordagi yuk tushirgan bo'lsa, yukni tushirishda necha kishi ishlagan? 03-06-36
A)6 B)9 C)8 D)12 E)10

1-§. Ketma-ketliklar.

1. Ketma-ket kelgan yettiga bo'linuvchi ikki son kvadratlarining ayirmasi 931 ga teng. Shu sonlardan kattasini toping. 01-03.23
A)84 B)70 C)91 D)63 E)77

2. Natural sonlardan iborat ketma-ketlikning ikkinchi hadi birinchi hadidan katta, uchinchi hadidan boshlab har bir hadi, o'zidan oldingi ikkita hadning ko'paytmasiga teng. Agar shu ketma-ketlikning to'rtinchi hadi 18 ga teng bo'lsa, uning ikkinchi va birinchi hadi ayirmasini toping. 03-02-68
A)1 B)5 C)17 D)1 yoki 17 E) 7

3. $c_n = a \cdot k^{n-5}(a > 0)$ sonlari ketma-ketligining umumiy hadi bo'lib, $c_2 \cdot c_8 = 16$ bo'lsa, a nimaga teng? 03-06-17
A)2 B)4 C)5 D)6 E)8

4. $c_n = a \cdot k^{n-5}(a > 0)$ sonlar ketma-ketligining umumiy hadi bo'lib, $c_2 \cdot c_8 = 36$ bo'lsa, a nimaga teng? 03-07-23
A)2 B)4 C)5 D)6 E)8

5. Agar sonli ketma-ketlikning umumiy hadi $a_n = \dfrac{3n-8}{n+2}$ formula bilan ifodalansa, bu ketma-ketlikning $\dfrac{4}{5}$ dan kichik nechta hadi bor? 03-11-08
A)4 B)3 C)5 D)6 E)2

6. Kitob betlarini sahifalab chiqish uchun 1012 ta raqam ishlatildi. Agar sahifalash 3-betdan boshlangan bo'lsa, kitob necha betlik? 00-08-02
A)374 B)400 C)506 D)421 E)434

7. Natural sonlar qatori har biri natural sonning kvadrati bilan tugaydigan quyidagicha qismlarga ajratilgan: 1, (2,3,4), (5,6,7,8,9), (10,11,12,13,14,15,16), ... 10 – qismdagi sonlar yig'indisini toping 00-03-03
A)1758 B)1800 C)1626 D)1729 E)1913

8. Agar $a_1 + a_2 + a_3 \ldots + a_{2001} = 0$ bo'lsa, $(a_1 - a_2) + 2(a_2 - a_3) + 3(a_3 - a_4) + \ldots + 2000(a_{2000} - a_{2001}) + 2001a_{2001}$ ning qiymatini hisoblang 02-06-07
A)0 B)5050 C)1 D)1001·1000 E)2001·1001

9. $a_n = -3n^2 + 18n + 1\ (n \in Z)$ formula bilan berilgan ketma-ketlikning nechanchi hadi eng katta qiymatga ega bo'ladi? 02-03-27
A)3 B)2 C)6 D)8 E)5

10. $\sqrt[3]{2\sqrt[3]{3\sqrt[3]{3\sqrt[3]{5}\ldots}}}$ ni hisoblang 00-03-49
A)$\sqrt[3]{3}$ B)$\sqrt[6]{3}$ C)1 D)$\sqrt{3}$ E)3

11. $\sqrt{2^3\sqrt{5^3\sqrt{2^3\sqrt{5^3}}}}\ldots$ ifodaning qiymatini toping 00-10-54
A)17 B)12 C)14 D)41 E)20

12. $\sqrt[3]{x^2\sqrt[3]{x^2\sqrt[3]{x^2}\ldots}} = 49$ tenglamani yeching. 99-06-52
A)49 B)7 C)39 D)50 E)24

13. $\sqrt[3]{x\sqrt[3]{x\sqrt[3]{x}\ldots}} = 8$ tenglamani yeching. 03-07-26
A)56 B)48 C)60 D)54 E)64

14. $y\sqrt[3]{y\sqrt[3]{y}\ldots} = 2\sqrt{2}$ tenglamani yeching. 03-08-33
A)2 B)$\sqrt{2}$ C)3 D)4 E)5

15. $\sqrt[3]{x+\sqrt[3]{x+\sqrt[3]{x+\ldots}}} = 4$ tenglamani yeching. 03-06-15
A)56 B)48 C)60 D)54 E)64

16. Agar (a_n) ketma-ketlik uchun $a_1 = 0$, $a_2 = 1, \ldots, a_{n+2} = a_{n+1} - a_n$ ekani ma'lum bo'lsa, a_{8085} ni toping. 00-10-75
A)1 B)0 C)–1 D)2 E)3

17. (a_n) ketma-ketlikning dastlabki n ta hadining yig'indisi $S_n = 11 - 4n^2$ formula bo'yicha hisoblanadi. $a_5 + a_6$ ning qiymatini toping. 03-02-63
A)60 B)80 C)–80 D)–60 E)–208

18. Natural sonlardan iborat ketma-ketlikning ikkinchi hadidan boshlab har bir hadi o'zidan oldingi hadning kvadratidan 5 ning ayrilganiga teng. Agar shu ketma-ketlikning uchinchi hadi 116 ga teng bo'lsa, uning birinchi hadi nechaga teng? 03-12-47
A)3 B)4 C)5 D)7 E)8

2-§. Arifmetik progressiya.

1. Arifmetik progressiyada $a_2 = 12$ va $a_5 = 3$. Shu progressiyaning o'ninchi hadini toping. 96-01-27
A)–6 B)0 C)–12 D)–30 E)–15

2. Arifmetik progressiyada $a_4 - a_2 = 2$ va $a_7 = 14$. Shu progressiyaning beshinchi hadini toping. 96-09-78
A)12 B)8 C)7 D)10 E)6

3. Ikkinchi hadi 5 ga, sakkizinchi hadi 15 ga teng bo'lgan arifmetik progressiyaning beshinchi hadini toping. 98-10-67
A)7,5 B)12,5 C)10 D)8,5 E)9

4. Arifmetik progressiyada $a_{20} = 0$ va $a_{21} = -41$ bo'lsa, a_1 ni toping. 00-01-22
A)779 B) 779 C)41 D)–41 E)–820

5. 0,(328); x va 0,(671) sonlari arifmetik progressiyani tashkil etadi. x ning qiymatini toping 2000-43
A)0,(45) B)0,(523) C)0,(532) D)0,47 E)0,50

6. 4, 9, 14, ... arifmetik progressiyaning sakkizinchi hadi to'rtinchi hadidan nechta ortiq? 96-10-14
A)16 B)18 C)20 D)22 E)24

7. Arifmetik progressiyaning barcha hadlari natural sonlardan iborat. Agar $a_1 = 3$ va $20 < a_3 < 22$ bo'lsa, progressiyaning ayirmasini toping 97-06-20
A)8 B)10 C)7 D)6 E)9

8. Uchta sonning o'rta arifmetigi 2,6 ga, birinchi son esa 2,4 ga teng. Agar keyingi har bir son avvalgisidan ayni bir songa farq qilsa, keyingi sondan oldingisining ayirmasini toping. 02-01-40

A) $\frac{1}{3}$ B)0,1 C) $\frac{1}{4}$ D)0,2 E)0,3

9. 7, 10, 13, ... arifmetik progressiyaning nechta hadining har birini qiymati 100 sonidan katta, 200 sonidan kichik bo'ladi? 02-02-12

A)33 B)34 C)35 D)32 E)31

10. Arifmetik progressiyaning birinchi va to'rtinchi hadi yig'indisi 26 ga teng, ikkinchi hadi esa beshinchi hadidan 6 ga katta. Shu progressiyaning uchinchi va beshinchi hadi yig'indisini toping. 02-05-29

A)20 B)21 C)22 D)23 E)24

11. 7 ga karrali ikki xonali natural sonlar nechta? 02-[illegible]

A)14 B)12 C)15 D)11 E)13

12. Arifmetik progressiyaning ikkinchi hadi –7 ga, beshinchi va sakkizinchi hadlarining ayirmasi –6 ga teng. Shu progressiyaning nechanchi hadi 9 ga teng bo'ladi? 03-09-24

A)4 B)7 C)10 D)12 E)13

13. Arifmetik progressiya uchun quyidagi formulalardan qaysilari to'g'ri? 01-03-37

1) $a_1 + a_n = a_3 + a_{n-2}$ 2) $\frac{a_n - a_1 + d}{n} = d$ 3) $S_n = \frac{a_1 + (n-1)d}{2} \cdot n$

A)1; 2 B)2; 3 C)3 D)1; 2; 3 E)2

14. Arifmetik progressiya uchun quyidagi formulalardan qaysilari to'g'ri? 98-12-36

1) $a_1 - 2a_2 + a_3 = 0$ 2) $a_1 = a_3 - a_2$ 3) $n = \frac{a_n - a_1 + d}{d}$

A)1; 3 B)1 C)2 D)1; 2 E)hammasi

15. Arifmetik progressiyada $a_1 = 3$ va $d = 2$ bo'lsa, $a_1 - a_2 + a_3 - a_4 + ... + a_{25} - a_{26} + a_{27}$ ning qiymatini hisoblang. 02-04-16

A)31 B)30 C)29 D)28 E)27

16. Arifmetik progressiya hadlari uchun $a_1 + a_3 + ... + a_{21} = a_2 + a_4 + ... a_{20} + 15$ tenglik o'rinli bo'lsa, a_{11} ni toping. 02-04-18

A)11 B)13 C)15 D)17 E)19

17. Agar arifmetik progressiya hadlari uchun $a_1 + a_3 + ... + a_{19} = a_2 + a_4 + ... a_{20} + 10$ tenglik o'rinli bo'lsa, arifmetik progressiyaning ayirmasini toping. 02-04-22

A)1 B)– 1 C)0 D)– 2 E)2

18. Agar arifmetik progressiyada $a_2 + a_5 - a_3 = 10$ va $a_1 + a_6 = 17$ bo'lsa, uning o'ninchi hadini toping. 03-03-36

A)24 B)26 C)28 D)29 E)30

19. Arifmetik progressiyada $a_1 = 1$, $a_5 = 5 + x$ va $a_{15} = 10 + 3x$ bo'lsa a_{39} ni toping. 03-07-24

A)–53 B)–54 C)–55 D)–56 E)–57

20. Kinoteatrning birinchi qatorida 21 ta o'rin bor. Har bir keyingi qatorda o'rinlar soni oldingi qatordagidan 2 tadan ko'p. 40-qatorda nechta o'rin bor? 03-02-67

A)42 B)80 C)99 D)100 E) 101

21. 4 ta banderolni jo'natish uchun 120 so'mga 4 ta turli marka olindi. Agar markalarning baholari arifmetik progressiyani etib, eng qimmat marka eng arzonidan 3 marta qimmat tursa, eng qimmatining bahosi necha so'm bo'ladi? 98-11-06

A)50 B)45 C)62 D)54 E) 48

22. Birinchi hadi 1 ga, o'nbirinchi hadi 13 ga teng bo'lgan arifmetik progressiyaning oltinchi hadini toping. 98-03-20

A)4 B)5 C)6 D)7 E)8

23. Arifmetik progressiyaning dastlabki 6 ta hadlari 7, a_2, a_3, a_4, a_5 va 22 bo'lsa, $a_2 + a_3 + a_4 + a_5$ ni hisoblang. 97-04-27

A)65 B)60 C)82 D)58 E)70

24. Arifmetik progressiyaning to'rtinchi va o'n birinchi hadlari mos ravishda 2 va 30 ga teng. Shu progressiyaning uchinchi va o'ninchi hadi yig'indisini toping. 02-11-38

A)16 B)18 C)24 D)28 E)32

25. O'suvchi arifmetik progressiyaning dastlabki uchta hadining yig'indisi 24 ga teng. Shu progressiyaning ikkinchi hadini toping. 02-02-13

A)8 B)aniqlab bo'lmaydi C)10 D)6 E)7

26. Arifmetik progressiyada $a_2 + a_{19} = 40$. Shu progressiyaning dastlabki 20 ta hadlari yig'indisini toping. 98-10-18

A)300 B)360 C)400 D)420 E)380

27. Arifmetik progressiyaning uchinchi va beshinchi hadi mos ravishda 11 va 19 ga teng bo'lsa, uning dastlabki o'nta hadlarining yig'indisi qanchaga teng bo'ladi? 98-11-26

A)210 B)190 C)230 D)220 E)240

28. (a_n) arifmetik progressiyada $a_1 = 3$, $a_{60} = 57$ bo'lsa, progressiyaning dastlabki 60 ta hadi yig'indisi qanchaga teng bo'ladi? 98-11-35

A)1500 B) $\frac{3423}{2}$ C)1600 D)1800 E)6000

29. Arifmetik progressiyaning hadlari 19 ta. Uning o'rta hadi 21 ga teng. Shu progressiyaning hadlari yig'indisini toping. 99-02-23

A)398 B)399 C)400 D)384 E)392

30. Arifmetik progressiyaning o'n uchinchi hadi 5 ga teng. Uning dastlabki 25 ta hadlari yig'indisini toping. 99-04-28

A)125 B)100 C)75 D)225 E)aniqlab bo'lmaydi

31. Ikkinchi va o'n to'qqizinchi hadlarining yig'indisi 12 ga teng bo'lgan arifmetik progressiyaning dastlabki yigirmatta hadining yig'indisini toping. 96-06-36
A)110 B)120 C)130 D)115 E)125

32. Arifmetik progressiyada $a_3 + a_5 = 12$. S_7 ni toping. 96-11-28
A)18 B)36 C)42 D)48 E)54

33. Arifmetik progressiyada $a_4 + a_6 = 10$. S_9 ni toping. 96-12-28
A)25 B)30 C)35 D)40 E)45

34. Arifmetik progressiya 26 haddan iborat. Agar $a_6 = -0{,}25$ va $a_{21} = -0{,}5$ bo'lsa, uning hadlari yig'indisini toping. 99-10-24
A)–10,5 B)–10,75 C)–7,85 D)–8,5 E)–9,75

35. Arifmetik progressiyaning dastlabki 13 ta hadi yig'indisi 104 ga teng. Yettinchi hadining kvadratini toping. 00-03-44
A)25 B)36 C)49 D)64 E)81

36. Arifmetik progressiyaning birinchi va to'qqizinchi hadlari yig'indisi 64 ga teng. Shu progressiyaning dastlabki to'qqizta hadlari yig'indisi va beshinchi hadi ayirmasini toping. 00-07-25
A)256 B)250 C)270 D)208 E)180

37. Arifmetik progressiya birinchi o'nta hadining yig'indisi 140 ga teng bo'lsa, $a_2 + a_9$ ni aniqlang. 02-01-55
A)24 B)26 C)30 D)28 E)27

38. Arifmetik progressiyaning uchinchi, yettinchi, o'n to'rtinchi va o'n sakkizinchi hadlarining yig'indisi 48 ga teng. Bu progressiyaning dastlabki 20 ta hadi yig'indisini toping. 02-03-26
A)240 B)280 C)260 D)220 E)340

39. 15 ta haddan iborat arifmetik progressiyaning sakkizinchi hadi 18 ga teng. Shu progressiyaning hadlari yig'indisini toping. 03-04-19
A)280 B)270 C)250 D)300 E)260

40. Arifmetik progressiyada $a_{10} = 56$ bo'lsa, uning dastlabki 19 ta xadlari yig'indisini toping 03-06-56
A)1024 B)1032 C)1056 D)1064 E)976

41. Agar arifmetik progressiyada $a_1 + a_2 + \ldots + a_{16} + a_{17} = 136$ bo'lsa, $a_6 + a_{12}$ ni hisoblang. 05-08-30
A)16 B)10 C)12 D)10 E)32

42. 21 ta hadining yig'indisi 546 ga teng bo'lgan arifmetik progressiyaning o'n birinchi hadini toping. 05-10-20
A)16 B)24 C)22 D)26 E)28

43. Arifmetik progressiyada $a_2 = 10$ va $a_5 = 22$. Shu progressiyaning dastlabki sakkizta hadining yig'indisini toping. 96-10-29
A)162 B)170 C)115 D)160 E)156

44. Dastlabki mingta natural sonlarning o'rta arifmetigini toping 05-10-21
A)500 B)501 C)501,5 D)500,5 E)502,5

45. Ketma-ket kelgan yettita natural sonning o'rta arifmetigi nimaga teng? 01-10-04
A)ikkinchisiga B)uchinchisiga C)to'rtinchisiga D)beshinchisiga E)aniqlab bo'lmaydi

46. 4, 7, 10, ..., 100 sonlarining o'rta arifmetik qiymatini toping. 02-04-13
A)50 B)51 C)52 D)53 E)54

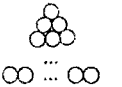
47. Arifmetik progressiyaning dastlabki 16 hadlari yig'indisi 840 ga, oxirgi hadi (a_{16}) 105 ga teng. Shu progressiyaning ayirmasini toping. 98-01-27
A)9 B)7 C)15 D)5 E)11

48. Arifmetik progressiyaning dastlabki n ta hadining yig'indisi 91 ga teng. Agar $a_3 = 9$ va $a_7 - a_2 = 20$ ekanligi ma'lum bo'lsa, n ni toping. 99-06-54
A)7 B)5 C)3 D)9 E)8

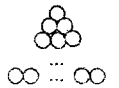
49. Hadlari $x_n = 4n + 5$ formula bilan berilgan ketma-ketlikning dastlabki o'ttizta hadi yig'indisini toping. 97-01-17
A)2010 B)1900 C)2100 D)1940 E)2210

50. Hadlari $b_n = 3n - 1$ formula bilan berilgan ketma-ketlikning dastlabki 60 ta hadining yig'indisini toping. 97-11-17
A)4860 B)4980 C)5140 D)5260 E)5430

51. G'o'la shaklidagi to'sinlar rasmdagidek ustma-ust taxlangan. Agar taxlamning asosida 10 ta to'sin bo'lsa, taxlamda nechta to'sin bor? 97-05-27
A) 53
B) 54
C) 55
D) 56
E) 57



52. Quvurlar rasmdagidek ustma-ust taxlangan. Agar taxlamning asosidagi 11 ta quvur bo'lsa, taxlamda nechta quvur bor? 97-09-27
A)66
B)67
C)68
D)65
E)64



53. Arifmetik progressiyaning dastlabki to'rtta hadi yig'indisi 124 ga, oxirgi to'rttasiniki 156 ga teng. Progressiyaning hadlari yig'indisi 350 ga teng. Progressiyaning nechta hadi bor? 04-01-21
A)8 B)9 C)11 D)10 E)7

54. Arifmetik progressiya uchun $a_{17} = 2$ ga teng bo'lsa, $S_{21} - S_{12}$ ni toping. 01-05-28
A)18 B)15 C)16 D)17 E)19

55. $-\sqrt{8}; -\sqrt{2}; \ldots$ arifmetik progressiyaning dastlabki 8 ta hadi yig'indisini toping. 03-09-04
A)12 2 B)12 C)–12 2 D)5 2 E)3 2

56. Arifmetik progressiyada $a_1 = 0$ va $d = 3$ bo'lsa, $a_3 + a_6 + a_9 + \ldots + a_{33}$ ning qiymatini hisoblang. 02-04-20
A)560 B)561 C)559 D)562 E)563

57. Arifmetik progressiyaning oltinchi hadi 10 ga, dastlabki 16 hadining yig'indisi 200 ga teng. Bu progressiyaning 12-hadini toping. 03-05-27
A)16 B)14 C)18 D)20 E)15

58. 10; 15; 20; ... arifmetik progressiyaning dastlabki nechta hadining yig'indisi 2475 ga teng bo'ladi? 03-12-27
A)40 B)25 C)30 D)35 E)33

59. O'zidan oldin kelgan barcha toq natural sonlar yig'indisining $\frac{1}{6}$ qismiga teng bo'lgan natural sonni toping. 01-09-23
A)18 B)30 C)24 D)36 E)48

60. O'zidan oldingi barcha natural sonlar yig'indisining $\frac{1}{10}$ qismiga teng bo'lgan natural sonni toping. 00-06-23
A)21 B)10 C)25 D)20
E)To'g'ri javob keltirilmagan

61. O'zidan oldingi toq natural sonlar yig'indisining $\frac{1}{8}$ qismiga teng bo'lgan natural sonni toping. 02-12-18
A)16 B)24 C)32 D)64 E)40

62. Dastlabki yettita hadining yig'indisi –266 ga, dastlabki sakkizta hadining yig'indisi –312 ga va hadlarining ayirmasi –2 ga teng bo'lgan arifmetik progressiyaning birinchi hadini toping. 97-08-35
A)–32 B)–42 C)–34 D)–36 E)–56

63. Arifmetik progressiyada $S_{20} - S_{19} = -30$ va $d = -4$ bo'lsa, a_{25} ning qiymatini toping. 98-02-18
A)–40 B)–50 C)–48 D)–56 E)–42

64. Arifmetik progressiya dastlabki n ta hadining yig'indisi $S_n = n^2$ bo'lsa, uning o'ninchi hadini toping. 98-06-26
A)100 B)15 C)23 D)19 E)121

65. Agar arifmetik progressiyada $S_n - S_{n-1} = 52$ va $S_{n+1} - S_n = 64$ bo'lsa, uning hadlari ayirmasi qanchaga teng bo'ladi? 98-09-12
A)10 B)11 C)12 D)13 E)14

66. Arifmetik progressiyaning dastlabki nechta hadini olmaylik ularning yig'indisi hadlar soni kvadratining uchlanganiga teng. Shu progressiyaning yettinchi hadini toping. 00-03-45
A)25 B)27 C)31 D)39 E)42

67. Arifmetik progressiyada $a_1 = -3$ va $d = 5$ bo'lsa, $S_{15} - S_{14}$ ayirmani toping. 02-04-14
A)73 B)70 C)67 D)64 E)61

68. Agar arifmetik progressiyaning dastlabki n ta hadining yig'indisi $S_n = \frac{n^2}{2} - 3n$ formula bilan topilsa, uning umumiy hadi qanday ifodalanadi? 05-05-26
A) $n - 3{,}5$ B) $\frac{1}{2}n + 3{,}5$ C) $3n - 0{,}5$
D) $n + 3{,}5$ E) $2n + 0{,}5$

69. S_n arifmetik progressiyaning dastlabki n ta hadi yig'indisi bo'lsa, $S_5 - 3S_4 + 3S_3 - S_2$ ning qiymatini toping. 03-11-09
A)0 B)$-2a_1$ C)$2a_1$ D)$3a_1$ E)$-3a_1$

70. Dastlabki n ta hadining yig'indisi $S_n = 2n^2 - 3n$ formula bo'yicha hisoblanadigan arifmetik progressiyaning ayirmasini toping. 03-12-64
A)5 B)–3 C)3 D)2 E)4

71. Arifmetik progressiyaning uchinchi hadi 8 ga, to'rtinchi hadi 5 ga va dastlabki bir nechta hadlari yig'indisi 28 ga teng. Yig'indida nechta had qatnashgan? 98-08-27
A)10 B)7 C)11 D)9 E)8

72. $\frac{a + 2a + 3a + \ldots + na}{n^2 - 2n - 3} - \frac{3a}{2(n-3)}$ ni soddalashtiring. 02-05-08
A) $\frac{n}{a}$ B) $\frac{a}{n}$ C) $\frac{a}{2}$ D) $\frac{na}{2}$ E) $\frac{2}{na}$

73. Agar $a_2 + a_4 + a_6 + \ldots + a_{2n} = 126$ va $a_{n-2} + a_{n+4} = 42$ bo'lsa, $a_1, a_2, \ldots a_{2n}$ arifmetik progressiyaning hadlar sonini toping. 99-03-22
A)6 B)8 C)10 D)16 E)12

74. (x_n) arifmetik progressiyaning dastlabki n ta hadi yig'indisi 120 ga teng. Agar $x_3 + x_{n-2} = 30$ bo'lsa, yig'indida nechta had qatnashgan? 97-02-36
A)6 B)10 C)8 D)12 E) 11

75. 5 ga bo'lganda qoldiq 1 chiqadigan dastlabki 20 ta sonning yig'indisini toping. 99-03-32
A)950 B)1070 C)1090 D)1030 E)1100

76. 100 dan ortiq bo'lmagan 3 ga karrali barcha natural sonlarning yig'indisini toping. 98-06-56
A)1683 B)1783 C)1680 D)1693 E)1608

77. 100 dan katta bo'lmagan 3 ga karrali barcha natural sonlarning yig'indisini toping. 99-03-37
A)1683 B)2010 C)1500 D)1080 E)1680

78. 150 dan katta bo'lmagan 7 ga karrali barcha natural sonlarning yig'indisini toping. 99-03-37
A)1450 B)1617 C)1803 D)1517 E)1950

79. 150 dan katta bo'lmagan 6 ga karrali barcha sonlarning yig'indisini toping. 99-11-37
A)1800 B)2024 C)1760 D)1950 E)2100

80. 9 ga bo'lganda, qoldig'i 4 ga teng bo'ladigan barcha ikki xonali sonlarning yig'indisini toping. 02-11-37
A)527 B)535 C)536 D)542 E)545

81. 7 ga karrali barcha uch xonali sonlarning yig'indisini toping. 02-12-03
A)76056 B)70336 C)69756 D)70056
E)722365

82. 7 ga bo'lganda, qoldig'i 2 ga teng bo'ladigan barcha ikki xonali sonlarning yig'indisini toping. 03-05-56
A)640 B)647 C)650 D)654 E)700

83. a, $2a+2$; $3a+4$; ... ketma-ketlikning dastlabki 10 ta hadi yig'indisi 255 ga teng. a ning qiymatini toping. 99-05-04
A)3 B)2 C)5 D)7 E)8

84. $(x+1)+(x+4)+(x+7)+...++(x+28)=155$ tenglamani yeching. 02-08-10
A)1 B)2 C)-1 D)-2 E)3

85. y; $3y+5$; $5y+10$; ... arifmetik progressiyaning dastlabki 8 ta hadi yig'indisi 396 ga teng. y ning qiymatini toping. 00-09-13
A)2 B)3 C)4 D)5 E)6

86. Arifmetik progressiyada $a_1=1$, $a_5=5+x$ va $a_{15}=10+3x$ bo'lsa a_{37} ni toping. 03-06-18
A)-53 B)-54 C)-55 D)-56 E)-57

87. $(|x_1|-1)^2+(|x_2|-2)^2+...+(|x_n|-n)^2+...=0$ tenglikni qanoatlantiradigan (x_n) arifmetik progressiya nechta? 00-10-80
A)2 B)1 C)n D)$2n$ E)$n-1$

88. Sakkizta ketma-ket kelgan natural sonlarning yig'indisi 700 ga teng. Shu sonlardan eng kichigini toping. 02-06-10
A)78 B)84 C)82 D)80 E)86

89. Ketma-ket kelgan oltita natural sonning yig'indisi 435 ga teng. Shu sonlarning eng kichigini toping. 01-10-03
A)59 B)67 C)70 D)48 E)87

90. $\frac{x-1}{x}+\frac{x-2}{x}+\frac{x-3}{x}+...+\frac{1}{x}=4$ tenglamaning ildizi 10 dan nechta kam? 03-11-04
A)1 B)2 C)3 D)4 E)5

91. m ning $\sqrt{m-1}$; $\sqrt{5m-1}$; $\sqrt{12m+1}$; ... lar ko'rsatilgan tartibda arifmetik progressiya tashkil qiladigan qiymatlari yig'indisini toping. 02-01-17
A)12 B)13 C)8 D)15 E)m ning bunday qiymatlari yo'q

92. Arifmetik progressiyaning hadlari 60 ta. Uning juft o'rinda turgan hadlari yig'indisi toq o'rinda turgan hadlari yig'indisidan 15 ga ko'p. Progressiyaning to'rtinchi hadi 4,5 ga teng. Progressiyaning hadlari yig'indisini toping. 03-02-30
A)900 B)1200 C)1050 D)1065 E)1125

93. Arifmetik progressiyaning birinchi hadi 6 ga, oxirgi hadi esa 39 ga teng. Agar progressiyaning ayirmasi butun sondan iborat bo'lib, u 2 dan katta va 6 dan kichik bo'lsa, oxirgi haddan oldingi hadlar sonini aniqlang. 01-11-13
A)12 B)11 C)10 D)9 E)13

94. Arifmetik progressiyada 20 ta had bor. Juft nomerli hadlar yig'indisi 250 ga, toq nomerli hadlarning yig'indisi 220 ga teng. Progressiyaning 1-hadi va ayirmasini toping. 01-02-27
A)-5; 3 B)3, -3 C)2; 7 D)-2; 7 E)3; 3

95. Arifmetik progressiyaning dastlabki uchta hadi yig'indisi 66 ga, ikkinchi va uchinchi hadlarining ko'paytmasi 528 ga teng. Progressiyaning birinchi hadini toping 01-01-27
A)18 B)20 C)22 D)24 E)16

96. Arifmetik progressiyaning dastlabki sakkizta hadi yig'indisi 32 ga, dastlabki yigirmata hadining yig'indisi 200 ga teng. Progressiyaning dastlabki 28 ta hadining yig'indisini toping. 00-06-24
A)232 B)342 C)406 D)280 E)392

97. Agar a_1, a_2, ..., a_n sonlar arifmetik progressiyani tashkil qilsa, $\frac{1}{a_1a_2}+\frac{1}{a_2a_3}+\frac{1}{a_3a_4}+...+\frac{1}{a_{n-1}a_n}$ yig'indini toping. 00-08-65
A) a_1 B)a_1a_{n+1} C)$\frac{1}{a_1}$ D)$\frac{n}{a_1}$ E)$\frac{n-1}{a_1a_n}$

98. Ikkinchi, to'rtinchi va oltinchi hadlarining yig'indisi -18 ga teng arifmetik progressiyaning to'rtinchi hadini toping. 97-12-36
A)6 B)-5 C)-6 D)-4 E)5

99. Arifmetik progressiyada $a_2-a_1=6$ bo'lsa, a_8-a_6 ning qiymati nechaga teng bo'ladi? 99-09-26
A)10 B)12 C)9 D)18 E)14

100. Arifmetik progressiyaning beshinchi hadi 6 ga teng. Uning dastlabki to'qqizta hadi yig'indisini toping. 00-04-22
A)36 B)48 C)54 D)45 E)63

101. 5 va 1 sonlari orasiga shu sonlar bilan arifmetik progressiya tashkil etadigan bir nechta son joylashtirildi. Agar bu sonlarning yig'indisi 33 ga teng bo'lsa, Nechta had joylashtirilgan? 00-08-01
A)11 B)10 C)9 D)12 E)6

102. 2 va 65 sonlari orasiga 20 ta shunday son qo'yilganki, natijada hosil bo'lgan ketma-ketlik arifmetik progressiyani tashkil etgan. Shu progressiya hadlarining o'rta arifmetigini toping. 01-01-03
A) 27,5 B)32 C)44 D)33,5 E)46

103. Arifmetik progressiya uchinchi va to'qqizinchi hadlarining yig'indisi 8 ga teng. Shu progressiyaning dastlabki 11 ta hadlari yig'indisini toping 96-03-27
A)22 B)33 C)44 D)55 E)60

104. $a_n=4n-2$ formula bilan berilgan ketma-ketlikning dastlabki dastlabki 50 ta hadining yig'indisini toping 97-06-17
A)4500 B)5050 C)3480 D)4900 E)5000

105. 100 dan katta bo'lmagan 4 ga karrali barcha natural sonlarning yig'indisini toping 97-07-27
A)1250 B)1300 C)1120 D)1000 E)1296

106 $\frac{1}{100}+\frac{2}{100}+...+\frac{N}{100}=100N$ tenglikni qanoatlantiruvchi natural N ni toping 98-12-08
A)19999 B)9999 C)21999 D)999 E)1999

107. $-\frac{1}{4}; -\frac{1}{5}; \ldots$ arifmetik progressiyaning nechta hadi manfiy? 02-09-18
A)10 B)6 C)5 D)7 E)aniqlab bo'lmaydi

3-§. Geometrik progressiya.

1. Geometrik progressiyaning dastlabki 6 ta hadi $2, b_2, b_3, b_4, b_5$ va 486 bo'lsa, $b_2+b_3+b_4+b_5$ ni hisoblang. 97-09-87
A)200 B)260 C)230 D)250 E)240

2. Nechanchi hadidan boshlab $-8; 4; -2; \ldots$ geometrik progressiya hadlarining absolyut qiymati 0,001 dan kichik bo'ladi? 00-02-21
A)16 B)12 C)15 D)14 E)13

3. Barcha hadlari musbat bo'lgan geometrik progressiyaning birinchi hadi 2 ga, beshinchi hadi 18 ga teng. Shu progressiyaning beshinchi va uchinchi hadlari ayirmasini toping. 00-07-26
A)10 B)12 C)8 D)11 E)9

4. x ning qanday qiymatlarida $0,(16); x$ va $0,(25)$ sonlar ishorasi almashinuvchi geometrik progressiyaning ketmaket keluvchi hadlari bo'ladi? 00-09-40
A)0,(20) B)±0,(20) C)−0,(20) D)0,(21) E)0,(22)

5. $64; 32; 16; \ldots$ geometrik progressiyaning to'qqizinchi hadi oltinchi hadidan nechta kam? 00-10-23
A)1,025 B)1,5 C)1,25 D)1,75 E)1,85

6. (b_n) geometrik progressiyada $b_4 - b_2 = 24$ va $b_2 + b_3 = 6$ bo'lsa, b_1 ning qiymatini toping. 03-02-05
A)0,4 B)1 C)$1\frac{1}{5}$ D)2,2 E)$\frac{1}{5}$

7. Quyidagi ketma-ketliklardan qaysilari geometrik progressiyani tashkil etadi? 98-07-38
1) $a_n = 2x^n$; 2) $c_n = ax^n + 1$
3) $b_n = (\frac{3}{5})^n \cdot \sin 60°$
A)1; 3 B)2; 3 C)hech biri D)1; 2; 3 E)1; 2

8. Quyidagi ketma-ketliklardan qaysilari geometrik progressiyani tashkil etadi? 98-12-37
1) $a_n = \frac{2}{3} \cdot 2^n$, 2) $a_n = 3 \cdot 2^{-n} + 5$; 3) $b_n = (-\frac{1}{3})^n$.
A)1; 3 B)1; 2 C)2; 3 D)1; 2; 3 E)hech qaysisi

9. Geometrik progressiya uchun quyidagi formulalardan qaysilari to'g'ri? 01-03-38
1) $b_n = b_1 q^{n-1}$; 2) $b_n^2 = b_{n-1} \cdot b_{n+1}$;
3) $S_n = \frac{b_1(1-q^n)}{1-q}$
A)1; 2; 3 B)1 C)2 D)3 E)1; 3

10. $\frac{1}{3}$ va $\frac{1}{48}$ sonlar orasiga shunday uchta musbat sonni joylashtiringki, natijada geometrik progressiya hosil bo'lsin. O'sha qo'yilgan uchta sonning yig'indisini toping. 00-03-47
A)0,5 B)$\frac{7}{12}$ C)0,375 D)$\frac{5}{24}$ E)$\frac{7}{24}$

11. Geometrik progressiyada $b_2 b_3 b_4 = 216$ bo'lsa, uning uchinchi hadini toping. 96-06-37
A)12 B)8 C)4 D)10 E)6

12. $b_3 b_4 b_5 = 64$ ga teng bo'lgan geometrik progressiyaning to'rtinchi hadini toping. 97-08-36
A)10 B)12 C)4 D)6 E)8

13. Agar geometrik progressiyada $b_1 + b_9 = 5$ va $b_1^2 + b_9^2 = 17$ bo'lsa, $b_4 \cdot b_6$ ni toping. 98-06-27
A)4 B)3 C)2 D)1 E)6

14. Geometrik progressiyada uchinchi va yettinchi hadlarning ko'paytmasi 144 ga teng. Uning beshinchi hadini toping. 00-03-46
A)6 B)±12 C)−8 D)−12 E)12

15. Geometrik progressiyaning maxraji $\frac{1}{2}$ ga teng bo'lsa, $b_1(b_2)^{-1} b_3(b_4)^{-1} \ldots b_{13}(b_{14})^{-1}$ ning qiymatini hisoblang. 02-04-17
A)64 B)32 C)16 D)128 E)256

16. Agar geometrik prolgressiya hadlari uchun $b_1 b_3 \ldots b_{13} = b_2 b_4 \ldots b_{14} / 128$ tenglik o'rinli bo'lsa, progressiyaning maxrajini toping. 02-04-23
A)1 B)2 C)3 D)4 E)5

17. 3 va 19683 sonlari o'rtasiga 7 ta shunday musbat sonlar joylashtirilganki, hosil bo'lgan to'qqizta son geometrik progressiya tashkil etadi. 5-o'rinda turgan son nechaga teng. 02-08-09
A)243 B)343 C)286 D)729 E)442

18. Geometrik progressiyaning birinchi hadi 486ga, maxraji $\frac{1}{3}$ ga teng. Shu progressiyaning dastlabki to'rtta hadi yig'indisini toping. 98-08-26
A)680 B)840 C)720 D)760 E)800

19. Geometrik progressiyaning maxraji 3 ga, dastlabki to'rtta hadining yig'indisi 80 ga teng. Birinchi hadining qiymatini toping. 98-10-68
A)1 B)2 C)3 D)4 E)2,5

20. Geometrik progressiyada $b_1 = 1$ va $q = \sqrt{2}$ bo'lsa, $b_1 + b_3 + b_5 + \ldots b_{15}$ ning qiymatini hisoblang. 02-04-21
A)253 B)254 C)255 D)256 E)257

21. O'suvchi geometrik progressiyaning birinchi hadi 3 ga, yettinchi va to'rtinchi hadlarining ayirmasi 168 ga teng. Shu progressiyaning maxrajini toping. 03-12-46
A)3 B)$\frac{3}{2}$ C)$\sqrt{7}$ D)$2\sqrt{2}$ E)2

22. Maxraji 2 ga teng bo'lgan geometrik progressiyaning dastlabki oltita hadi yig'indisi 126 ga, dastlabki beshta hadi yig'indisi 62 ga teng. Progressiyaning birinchi hadini toping. 97-02-27
A)6 B)5 C)4 D)2 E)3

23. Geometrik progressiyaning maxraji -2 ga, dastlabki beshta hadining yig'indisi 5,5 ga teng. Progressiyaning beshinchi hadini toping. 98-01-26
A)4 B)-8 C)8 D)-16 E)16

24. Geometrik progressiyada $S_6 - S_5 = -128$ va $q = -2$. b_8 ning qiymatini hisoblang. 98-02-19
A)512 B)256 C)-512 D)-256 E)1024

25. Geometrik progressiyaning maxraji 3 ga, dastlabki to'rtta hadlari yig'indisi 80 ga teng. Uning to'rtinchi hadini toping. 98-03-21
A)24 B)32 C)54 D)27 E)57

26. (b_n) geometrik progressiyada $q = 2$ va $S_4 = 5$. b_2 ni toping. 99-04-29
A)0,4 B)0,8 C)$1\frac{1}{3}$ D)$\frac{2}{3}$ E)$\frac{5}{6}$

27. Olti haddan iborat geometrik progressiyaning dastlabki uchta hadining yig'indisi 168 ga, keyingi uchtasiniki 21 ga teng. Shu progressiyaning maxrajini toping. 01-01-28
A)$-\frac{1}{4}$ B)$\frac{1}{3}$ C)$\frac{1}{2}$ D)2 E)3

28. Geometrik progressiyada $b_1 = -1/2$ va $q = 2$ bo'lsa, $S_{14} - S_{13}$ ayirmani toping. 02-04-15
A)4096 B)-4096 C)2048 D)-2048 E)8192

29. Geometrik progressiyaning dastlabki oltita hadi yig'indisi 1820 ga, maxraji esa 3 ga teng. Shu progressiyaning birinchi va beshinchi hadlari yig'indisini toping. 02-05-28
A)164 B)246 C)328 D)410 E)492

30. Agar geometrik progressiyada $S_k - S_{k-1} = 64$ va $S_{k+1} - S_k = 128$ bo'lsa, uning mahraji qanchaga teng bo'ladi? 98-09-13
A)2 B)2,2 C)1,8 D)2,4 E)1,6

31. Agar hadlari haqiqiy sondan iborat bo'lgan o'suvchi geometrik progressiyaning birinchi uchta hadi yig'indisi 7, ko'paytmasi 8 ga teng bo'lsa, shu progressiyaning beshinchi hadini toping. 02-01-56
A)6 B)32 C)12 D)16 E)20

32. $-0,25; 0,5; \ldots$ geometrik progressiyaning hadlari 10 ta. Shu progressiyaning oxirgi 7 ta hadi yig'indisini toping. 02-09-19
A)-43 B)43 C)83 D)56 E)86

33. Geometrik progressiyaning ikkinchi hadi 2 ga, beshinchi hadi 16 ga teng. Shu progressiyaning dastlabki oltita hadi yig'indisini toping. 02-11-30
A)81 B)72 C)65 D)64 E)63

34. Geometrik progressiyaning oltinchi va birinchi hadi ayirmasi 1210 ga, maxraji 3 ga teng. Shu progressiyaning dastlabki beshta hadi yig'indisini toping. 03-04-26
A)610 B)615 C)600 D)605 E)608

35. Ikkinchi hadi 6 ga teng, birinchi uchta hadining yig'indisi 26 ga teng o'suvchi geometrik progressiyaning uchinchi va birinchi hadlari ayirmasini toping. 03-06-57
A)15 B)16 C)14 D)13 E)12

36. Geometrik progressiyaning birinchi hadi va maxraji 2 ga teng. Shu progressiyaning dastlabki nechta hadlari yig'indisi 1022 ga teng bo'ladi? 03-09-25
A)5 B)8 C)9 D)10 E)11

37. Geometrik progressiyaning dastlabki uchta hadi yig'indisi -26 ga, dastlabki to'rttasiniki esa -80 ga teng. Agar shu progressiyaning birinchi hadi -2 ga teng bo'lsa, uning maxraji qanchaga teng bo'ladi? 98-10-19
A)3 B)-3 C)-2 D)2 E)4

38. Agar geometrik progressiyada $b_1 = 2$; $b_n = \frac{1}{8}$ va $S_n = 3\frac{7}{8}$ bo'lsa, uning nechta hadi bor? 03-03-37
A)12 B)10 C)8 D)6 E)5

39. Hadlari musbat bo'lgan geometrik progressiyaning birinchi va uchinchi hadlari ko'paytmasi 4 ga, uchinchi va beshinchisiniki esa 64 ga teng. Progressiyaning ikkinchi, to'rtinchi va oltinchi hadlari yig'indisini toping. 01-05-21
A)40 B)44 C)42 D)46 E)38

40. Agar olti hadi geometrik progressiyaning dastlabki uchta hadining yig'indisi 112 ga va oxirgidagi uchta hadining yig'indisi 14 ga teng bo'lsa, birinchi hadi nechaga teng bo'ladi? 98-11-27
A)72 B)64 C)56 D)63 E)81

41. Ishorasi almashinuvchi geometrik progressiyaning birinchi hadi 2 ga, uchinchi hadi 8 ga teng. Shu progressiyaning dastlabki 6 ta hadi yig'indisini toping. 99-02-24
A)20 B)-20 C)-42 D)42 E)-64

42. 5 ta haddan iborat geometrik progressiyaning hadlari yig'indisi, birinchi hadini hisobga olmaganda 30 ga, oxirgisini hisobga olmaganda 15 ga teng. Shu progressiyaning uchinchi hadini toping. 99-03-25
A)6 B)8 C)4 D)10 E)12

43. O'suvchi geometrik progressiyaning dastlabki to'rtta hadining yig'indisi 15 ga, undan keyingi to'rttasiniki esa 240 ga teng. Shu progressiyaning dastlabki oltita hadi yig'indisini toping. 00-06-25
A)31 B)48 C)63 D)127 E)144

44. 1, 3, 7, 15, 31 $\ldots$, $2^n - 1$, $\ldots$ ketma-ketlikning dastlabki n ta hadining yig'indisini toping. 03-02-32
A)$4^n + 3n$ B)$2\left(2^n - 1\right) - n$ C)$2^n + n + 1$
D)$2^{2n} - 4n$ E)aniqlab bo'lmaydi

45. Geometrik progressiya barcha hadlarining yig'indisi uning toq nomerli hadlari yig'indisidan uch marta ko'p. Agar geometrik progressiya hadlarining soni juft bo'lsa, uning maxrajini toping. 99-03-24

A)3 B)$\frac{3}{2}$ C)$\frac{5}{2}$ D)2 E)3

46. Agar $1; \sqrt{y}; 3\sqrt{y}+4$ sonlari geometrik progressiyaning ketma-ket hadlari bo'lsa, y ni toping. 03-08-35

A)16 B)9 C)25 D)4 E)49

47. a, b, c, d sonlar ko'rsatilgan tartibda geometrik progressiya tashkil etadi. 03-11-10

$(a-c)^2+(b-c)^2+(b-d)^2-(a-d)^2$ ni soddalashtiring.

A)0 B)$2a$ C)$3b$ D)d E)$-2a$

48. Dastlabki beshta hadining yig'indisi – 62 ga, dastlabki oltita hadining yig'indisi –126 ga va maxraji 2 ga teng geometrik progressiyaning birinchi hadini toping. 97-12-35

A) -1 B)- 3 C)- 4 D)-2 E) 3

4-§. Cheksiz kamayuvchi geometrik progressiya.

1. $\sqrt{5}; 1; \frac{1}{\sqrt{5}}; \ldots$ geometrik progressiyaning yig'indisini toping. 99-01-23

A)$\frac{5}{\sqrt{5}-1}$ B)$\frac{6\sqrt{5}+5}{5}$ C)$\frac{\sqrt{5}-1}{\sqrt{5}}$ D)4,16 E)4,5

2. $\frac{1}{2}\cdot\frac{1}{3}+\frac{1}{4}\cdot\frac{1}{9}+\frac{1}{8}\cdot\frac{1}{27}+\ldots$ cheksiz kamayuvchi geometrik progressiyaning yig'indisini toping. 02-03-34

A)0,2 B)$\frac{1}{2}$ C)$\frac{3}{4}$ D)1,2 E)2,5

3. $\sqrt{1/3-1/9+1/27-1/81+\ldots}$ ni hisoblang. 02-04-1

A)0,3 B)0,4 C)0,5 D)0,6 E)0,7

4. $\sqrt{\frac{3}{2}}+\sqrt{\frac{2}{3}+\frac{2}{3}\sqrt{\frac{2}{3}}+\ldots}$ ni hisoblang. 03-07-25

A)$\frac{\sqrt{6}}{2}$ B)$\frac{3\sqrt{6}}{2}$ C)$\frac{2\sqrt{6}}{3}$ D)$\frac{2\sqrt{3}}{3}$ E)$\frac{2\sqrt{2}}{3}$

5. $x^3\left(1+(1-x)+(1-x)^2+(1-x)^3+\ldots\right)=\frac{17x}{4}-1$ 02-04-25

$(0<x<2)$ tenglamani yeching.

A)0,5 B)0,4 C)0,25 D)0,45 E)0,35

6. a ning qanday qiymatida $2a+a\sqrt{2}+a+\frac{a}{\sqrt{2}}+\ldots$ cheksiz kamayuvchi geometrik progressiyaning yig'indisi 8 ga teng bo'ladi? 02-05-30

A)1 B)$\frac{1}{\sqrt{2}}$ C)$2-\sqrt{2}$ D)$2+\sqrt{2}$ E)$2(2-\sqrt{2})$

7. $\frac{1}{x}+1+x+x^2+\ldots+x^n+\ldots=4{,}5$ $(|x|<1)$ tenglamani yeching. 03-07-68

A)$\frac{1}{8};\frac{1}{4}$ B)$\frac{1}{3};\frac{3}{5}$ C)$\frac{2}{3};\frac{1}{2}$ D)$\frac{1}{3};\frac{2}{3}$ E)$\frac{1}{4};\frac{1}{2}$

8. Cheksiz kamayuvchi geometrik progressiyaning birinchi hadi ikkinchisidan 8 ga ortiq, hadlarining yig'indisi esa 18 ga teng. Progressiyaning uchinchi hadini toping. 01-08-25

A)$1\frac{1}{3}$ B)$-33\frac{1}{3}$ C)$-1\frac{1}{3}$ D)$2\frac{2}{3}$ E)$1\frac{2}{3}$

9. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi 9 ga, maxraji esa $\frac{1}{3}$ ga teng. Uning birinchi hamda uchinchi hadlarining ayirmasini toping. 00-03-48

A)$5\frac{1}{3}$ B)$4\frac{2}{3}$ C)$5\frac{2}{3}$ D)$2\frac{1}{3}$ E)$3\frac{1}{3}$

10. Cheksiz kamayuvchi geometrik progressiyaning birinchi hadi 3 ga, hadlarining yig'indisi esa $\frac{9}{2}$ ga teng. Shu progressiyaning uchinchi hadini toping. 01-11-17

A)$\frac{2}{3}$ B)$\frac{1}{2}$ C)$\frac{3}{4}$ D)$\frac{1}{4}$ E)$\frac{1}{3}$

11. Cheksiz kamayuvchi geometrik progressiyaning hadlari yig'indisi 12 ga, maxraji esa $-\frac{1}{2}$ ga teng. *Uning birinchi va ikkinchi hadlari ayirmasini* toping. 00-01-22

A)26 B)–26 C)28 D)–27 E)27

12. Hadlarining yig'indisi 2,25 ga, ikkinchi hadi 0,5 ga teng bo'lgan cheksiz kamayuvchi geometrik progressiyaning maxrajini toping. 03-03-38

A)$\frac{1}{3};\frac{1}{6}$ B)$\frac{1}{4}$ C)$\frac{2}{3};\frac{1}{4}$ D)$\frac{1}{6}$ E)$\frac{1}{3};\frac{2}{3}$

13. Cheksiz kamayuvchi geometrik progressiyaning hadlari yig'indisi 1,6 ga, ikkinchi hadi – 0,5 ga teng. Shu progressiyaning uchinchi hadini toping. 03-12-65

A)$\frac{1}{8}$ B)$-\frac{1}{4}$ C)$-\frac{1}{8}$ D)$\frac{5}{8}$ E)$\frac{1}{4}$

14. Cheksiz kamayuvchi geometrik progressiyaning hadlari yig'indisi 8 ga, dastlabki to'rttasiniki esa 7,5 ga teng. Agar uning barcha hadlari musbat bo'lsa, progressiyaning birinchi hadini toping. 99-10-25

A)2 B)4,5 C)4 D)3 E)3,5

15. Cheksiz kamayuvchi geometrik progressiya hadlarining yig'indisi uning dastlabki ikkita hadi yig'indisidan 2 ga ko'p. Progressiyaning birinchi hadi 4 ga teng. Shu progressiyaning hadlari yig'indisini toping. 02-09-24

A)$2\frac{1}{3}$ B)–4 C)4 D)8 E)6

16. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi 243 ga, dastlabki beshta hadiniki esa 275 ga teng. Bu progressiyaning maxraji $\frac{1}{5}$ dan qancha kam?

A)$\frac{7}{15}$ B)$\frac{8}{15}$ C)$\frac{3}{5}$ D)$\frac{13}{15}$ E)$\frac{11}{15}$

02-12-32

17. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi 56 ga, hadlari kvadratlarining yig'indisi esa 448 ga teng progressiyaning maxrajini toping.
A)0,75 B)0,8 C)0,25 D)0,5 E)0,85

02-01-16

18. Cheksiz kamayuvchi geometrik progressiyaning birinchi hadi 2 ga, hadlarining yig'indisi esa 5ga teng. Shu progressiyaning hadlari kvadratlaridan tuzilgan progressiyaning hadlari yig'indisini toping.
A)6,25 B)6,5 C)5,75 D)6,75 E)5,85

03-04-21

19. Bir-biridan faqat maxrajlarining ishoralari bilan farq qiladigan 2 ta cheksiz kamayuvchi geometrik progressiya berilgan. Ularning yig'indilari mos ravishda S_1 va S_2 ga teng. Shu progressiyalardan istalganining hadlari kvadratlaridan tuzilgan cheksiz kamayuvchi geometrik progressiyaning yig'indisini toping.
A)$S_1 \cdot S_2$ B)$S_1 + S_2$ C)$|S_1 - S_2|$
D)$(S_1 + S_2)^2$ E)$S_1^2 + S_2^2$

02-10-54

5-§. Aralash masalalar.

1. (a_n) arifmetik progresssiyaning hadlari ayirmasi 1 ga teng. $(a_3 - a_1) + (a_5 - a_3)^2 + \ldots + (a_{19} - a_{17})^9$ yig'indini hisoblang.
A)1022 B)8192 C)4094 D)8194 E)4098

99-07-25

2. Arifmetik progressiyaning hadlari $a_1, a_2, \ldots, a_n$ ayirmasi esa $d \neq -1, 0, 1$ bo'lsa,
$(a_2 - a_1) + (a_3 - a_2)^2 + (a_4 - a_3)^3 + \ldots + (a_{n+1} - a_n)^n$ ni hisoblang.
A)$\frac{d^n - 1}{d - 1}$ B)$\frac{d(d^n - 1)}{d - 1}$ C)$\frac{d^n}{d - 1}$
D)$\frac{d(d^n + 1)}{d + 1}$ E)$\frac{d(d^n - 1)}{d + 1}$

98-05-24

3. Agar geometrik progressiyaning dastlabki 4 ta hadiga mos ravishda 1; 1, 4 va 13 sonlarini qo'shsak, ular arifmetik progressiyani tashkil etadi. Geometrik progressiyaning maxrajini toping.
A)2 B)–2 C)3 D)–3 E)4

01-05-29

4. Yig'indisi 35 ga teng bo'lgan uchta son o'suvchi geometrik progressiyaning dastlabki uchta hadlaridir. Agar shu sonlardan mos ravishda 2, 2 va 7 sonlarni ayrilsa, hosil bo'lgan sonlar arifmetik progressiyaning ketma-ket hadlari bo'ladi. Arifmetik progressiyaning dastlabki 10 ta hadining yig'indisini toping.
A)245 B)275 C)255 D)265 E)235

01-05-29

5. 2; b_2 va b_3 sonlari o'suvchi geometrik progressiyaning dastlabki uchta hadidan iborat. Agar bu progressiyaning ikkinchi hadiga 4 qo'shilsa, hosil bo'lgan sonlar arifmetik progressiyaning dastlabki uchta hadini hosil etadi. Berilgan progressiyaning maxrajini toping.
A)3 B)2 C)2,5 D)3,5 E)1,5

01-11-16

6. Yig'indisi 15 ga teng bo'lgan uchta son arifmetik progressiyaning dastlabki uchta hadidir. Agar shu sonlarga mos ravishda 1; 3 va 9 sonlari qo'shilsa, hosil bo'lgan sonlar o'suvchi geometrik progressiyaning ketma-ket hadlari bo'ladi. Geometrik progressiyaning dastlabki 6 ta hadi yig'indisini toping.
A)252 B)256 C)248 D)254 E)250

01-12-36

7. Kamayuvchi geometrik progressiya tashkil etuvchi uchta sondan uchinchisi 18 ga teng. Bu son o'rniga 10 soni olinsa, uchta son arifmetik progressiya tashkil etadi. Birinchi sonni toping.
A)50 B)60 C)40 D)27 E)36

02-03-28

8. Nolga teng bo'lmagan x, y, z sonlar ko'rsatilgan tartibda ishorasi o'zgaruvchi geometrik progresiyani, $x + y$; $y + z$; $z + x$ sonlar esa arifmetik progressiyani tashkil etadi. Geometrik progressiyaning maxrajini toping.
A)–2 B)–1 C)–3 D)–4 E)–5

98-04-21

9. 1, 8, 22, 43, ...sonlar ketma-ketligi shunday xususiyatga egaki, ikkita qo'shni hadlarining ayirmasi 7, 14, 21, ... arifmetik progressiyani tashkil etadi. Berilgan ketma-ketlikning nechanchi hadi 35351 ga teng bo'ladi?
A)97 B)99 C)101 D)103 E)107

01-02-19

1-§. Ko'rsatkichli funksiya. Xossalari va grafigi.

1. $\frac{9^2 \cdot 3^5}{81^2}$ ni hisoblang. 96-01-24

A)1 B)3 C)$\frac{1}{81}$ D)9 E)27

2. $\frac{27^3}{3^4 \cdot 9^2}$ ni hisoblang. 96-09-65

A)3 B)$\frac{1}{3}$ C)1 D)9 E)$\frac{1}{9}$

3. $\frac{0,5^5 \cdot 32^2}{4^3}$ ni hisoblang. 96-10-25

A)2 B)$\frac{1}{2}$ C)4 D)$\frac{1}{4}$ E)8

4. $\frac{10^9 \cdot 3^5}{3^3 \cdot 10^{11}}$ ni hisoblang. 99-06-01

A)0,09 B)0,9 C)9 D)0,03 E)0,3

5. $\left(-\frac{4}{6}\right) \cdot \left(\frac{8}{6}\right)^3 \cdot \left(-\frac{3}{2}\right)^2 \cdot (0,75)^3$ ni hisoblang. 00-08-52

A)1,5 B)1,75 C)2,75 D)2 E)-1,5

6. $\frac{2^{-2} \cdot 5^3 \cdot 10^{-4}}{2^{-3} \cdot 5^2 \cdot 10^{-5}}$ ni hisoblang. 01-03-02

A)100 B)0,01 C)2 D)5 E)10

7. $\frac{\left(\frac{3}{2}\right)^{-3} \cdot (3,375)^{-1}}{(2,25)^{-2} \cdot \left(\frac{2}{3}\right)^{-1}}$ ni hisoblang. 01-08-09

A)$2\frac{1}{4}$ B)$\frac{4}{9}$ C)$\frac{8}{27}$ D)$3\frac{3}{8}$ E)$1\frac{1}{2}$

8. $\frac{2^{5n-3} \cdot 2^{3n+2}}{2^{4n-1}}$ ni soddalashtiring. 98-07-25

A)2^{3n} B)2^{4n+1} C)2^{4n+2} D)2^{5n} E)2^{4n}

9. $\frac{3^{4n+3} \cdot 3^{3n-2}}{3^{2n-1}}$ ni soddalashtiring. 98-12-24

A)3^{5n+2} B)3^{5n+3} C)3^{5n+1} D)3^{5n-1} E)3^{5n+4}

10. $\frac{2^{5n+3} \cdot 2^{3n-4}}{2^{4n+1}}$ ni soddalashtiring. 01-03-30

A)2^{4n-1} B)2^{n-2} C)2^{2n-2} D)2^{4n+1} E)2^{4n-2}

11. $2 \cdot 4^{-2} + (\frac{2}{3})^{-3} - (\frac{1}{5})^0$ ni hisoblang. 97-07-11

A)$3\frac{1}{2}$ B)$4\frac{2}{3}$ C)2 D)2,5 E)0

12. $(-\frac{2}{3})^2 \cdot (-0,75)^3 \cdot (1,5)^4 \cdot (-\frac{4}{3})^3$ ni hisoblang. 98-11-01

A)1,75 B)2,75 C)2,5 D)2,25 E)1,5

13. $(1\frac{1}{9} \cdot 0,27 - 3\frac{1}{3} \cdot 0,15) - 1500 \cdot (-0,1)^3$ ni hisoblang. 98-12-60

A)1,3 B)1,4 C)1,5 D)1,6 E)1,7

14. $0,3^{-3} + (\frac{3}{7})^{-1} + (-0,5)^{-2} \cdot \frac{3}{4} + (-1)^{-8} \cdot 6$ ni hisoblang. 98-12-68

A)$51\frac{5}{9}$ B)$42\frac{4}{9}$ C)$34\frac{2}{3}$ D)$48\frac{10}{27}$ E)$52\frac{2}{27}$

15. $((-17)^{-4})^{-6} : ((-17)^{-13})^{-2} - (\frac{1}{17})^2$ ni hisoblang. 03-06-53

A)$\frac{1}{289}$ B)$\frac{1}{17}$ C)1 D)0 E)$\frac{16}{17}$

16. $\frac{110^6 \cdot 77^4}{55^8 \cdot 154^2}$ ni hisoblang. 97-04-18

A)20 B)$30\frac{9}{25}$ C)$31\frac{1}{25}$ D)$31\frac{9}{25}$ E)31

17. $\frac{72^6 \cdot 24^4}{36^8 \cdot 8^3}$ ni hisoblang. 97-09-78

A)24 B)32 C)16 D)36 E)28

18. $\frac{0,04^{-2} \cdot 125^4 \cdot 0,2^{-1}}{4 \cdot 25^8}$ ni hisoblang. 00-06-08

A)0,5 B)1,25 C)$\frac{1}{4}$ D)0,2 E)$1\frac{1}{2}$

19. $\left(-\frac{16x^{31}}{9y^3}\right)^3 : \left(\frac{8x^{23}}{3y^2}\right)^4$ ni soddalashtiring. 99-06-05

A)$-\frac{y}{x}$ B)$-\frac{x}{y}$ C)$\frac{x}{9y}$ D)$-\frac{y}{9x}$ E)$-\frac{x}{9y}$

20. $4^{12} + 4^{12} + 4^{12} + 4^{12}$ yig'indining yarmini hisoblang. 03-08-30

A)2^{25} B)2^{24} C)4^{48} D)$2 \cdot 4^{16}$ E)4^{25}

21. $\frac{1000^{10}}{(700 - 200)^{12}} \cdot 500^2$ ni hisoblang. 98-05-05

A)512 B)1000 C)2048 D)1024 E)500

22. $\frac{100^5}{(80 + 20)^{10}} \cdot 50^5$ ni hisoblang. 99-07-07

A)$\frac{1}{32}$ B)16 C)8 D)$\frac{1}{64}$ E)$\frac{1}{128}$

23. $\frac{(-2)\cdot(-3)^{17}-(-3)^{16}}{9^7\cdot 15}$ sonning uchdan bir qismini toping. 02-01-05

A)1 B)3 C)2 D)9 E)6

24. $\frac{5(3\cdot 7^{15}-19\cdot 7^{14})}{7^{16}+3\cdot 7^{15}}$ ni hisoblang. 98-07-24

A)7 B)49 C)$\frac{1}{7}$ D)$\frac{1}{49}$ E)3

25. $\frac{5\cdot 2^{32}-4\cdot 2^{30}}{4^{16}}$ ni hisoblang. 98-12-23

A)4 B)2 C)5 D)16 E)$\frac{1}{4}$

26. Agar $\frac{(3\cdot 2^{20}+7\cdot 2^{19})\cdot 52}{(13\cdot 8^4)^2 x}=-1$ bo'lsa, $x=?$ 02-02-19

A)$-\frac{1}{8}$ B)$-\frac{1}{4}$ C)$-\frac{1}{16}$ D)$-\frac{5}{26}$ E)$-\frac{11}{26}$

27. $\frac{2^{19}\cdot 27^3+15\cdot 4^9\cdot 9^4}{6^9\cdot 2^{10}+12^{10}}$ ni hisoblang. 03-07-65

A)1 B)2 C)$\frac{1}{3}$ D)$\frac{2}{3}$ E)$\frac{1}{2}$

28. $\left(\left(\frac{1}{33}\right)^{-1}\cdot\left(\sqrt[4]{4}\right)^{-12}+\frac{2^{-5}}{-2}\right)^{-1}$ ni hisoblang. 00-10-01

A)$\frac{1}{2}$ B)4 C)2 D)$\frac{1}{4}$ E)0,75

29. $\left[65\cdot\left(\frac{1}{4^4}\right)^{-12}+\frac{2^{-5}}{-2}\right]^{-1}$ ni hisoblang. 00-10-05

A)$\frac{1}{2}$ B)2 C)$\frac{1}{4}$ D)$\frac{1}{8}$ E)1

30. $\frac{5\cdot 2^{k-2}+10\cdot 2^{k-1}}{10^{k+2}}$ ni soddalashtiring. 00-10-12

A)$4^{-1}\cdot 5^{-k}$ B)$4^{-2}\cdot 5^{-k}$ C)$4\cdot 5^{-k}$

D)$2^{-1}\cdot 5^{-k}$ E)$2\cdot 5^{-k}$

31. $\frac{2^{m+1}+2^{-m+1}}{(4^m+1)(3^{m+2}+3^{m+1})}$ kasrni qisqartiring. 00-10-74

A)$0{,}5\cdot 6^{-m}$ B)$(\frac{2}{3})^m$ C)6^{-m-1} D)3^m E)2^m

32. $\frac{4^{a+1}-2^{2a-1}}{2^{2a}}$ ning qiymati 9 dan qancha kam? 01-11-30

A)4 B)3,5 C)3 D)4,5 E)5,5

33. $ab\cdot\left(\frac{a^{1-n}}{b^n}-\frac{b^{1-n}}{a^n}\right)^{\frac{1}{n}}\cdot\frac{1}{\sqrt[n]{a-b}}$ ni soddalashtiring. 03-08-49

A)1 B)ab C)$\sqrt{ab}$ D)0 E)$\sqrt{a-b}$

34. $(1+\frac{1}{2})(1+\frac{1}{2^2})(1+\frac{1}{2^4})\ldots(1+\frac{1}{2^{16}})(1+\frac{1}{2^{32}})$ ni hisoblang. 00-05-08

A)$1-\frac{1}{2^{64}}$ B)$2(1-\frac{1}{2^{64}})$ C)$4(1-\frac{1}{2^{32}})$

D)$4(1+\frac{1}{2^{32}})$ E)$\frac{1}{2^{64}}$

35. Agar $5^z+5^{-z}=7$ bo'lsa, 25^z+25^{-z} ning qiymati qancha bo'ladi? 98-04-13

A)47 B)49 C)51 D)29 E)38

36. $49^x+49^{-x}=7$ $7^x+7^{-x}=?$ 98-12-72

A)4 B)$\sqrt{7}$ C)$\sqrt{5}$ D)14 E)3

37. $a=2^5+2^{-5}$ va $b=2^5-2^{-5}$ bo'lsa, a^2-b^2 nimaga teng? 99-06-35

A)0 B)2 C)$\frac{1}{2}$ D)$\frac{1}{4}$ E)4

38. $\left(3\frac{3}{8}\right)^{-\frac{2}{3}}+27^{\frac{2}{3}}\cdot 9^{0,5}\cdot 3^{-2}+\left(\left(\frac{7}{9}\right)^3\right)^0-$

$-\left(-\frac{1}{2}\right)^{-2}$ ni hisoblang. 02-10-09

A)$\frac{4}{9}$ B)$\frac{8}{9}$ C)1 D)0 E)$1\frac{2}{3}$

39. $y=a^x$ funksiya uchun qaysi mulohaza noto'g'ri? 98-05-31

A)aniqlanish sohasi – barcha haqiqiy sonlar to'plami

B)qiymatlar to'plami – barcha musbat haqiqiy sonlar to'plami

C)grafigi (0, 1) nuqtadan o'tadi

D)aniqlanish sohasi uzluksiz

E)aniqlani sohasida har doim o'suvchi

40. Quyidagilardan qaysilari kamayuvchi funksiyalar? 98-01-23

1) $y=0{,}37^x$; 2) $y=(\sqrt[3]{11})^x$; 3) $y=3\cdot(\frac{1}{2})^x$;

4) $y=(\frac{3}{4})^x$; 5) $y=\frac{1}{2}\cdot 3^x$.

A)1;3;5 B)2;3;4 C)1;4 D)3;5 E)1;3;4

41. Quyidagilardan qaysilari o'suvchi funksiyalar hisoblanadi? 98-12-22

1) $y=3^x$; 2) $y=(\sqrt[3]{10})^x$; 3) $y=(\frac{9}{11})^x$;

4) $y=(\frac{5}{3})^x$; 5) $y=(0{,}84)^x$

A)1;2;4 B)1;2;3 C)3;4;5 D)2;3;4 E)1;4;5

42. $e^{-x} = x-2$ tenglamaning nechta ildizi bor? 96-07-35
A)1 B)2 C)3 D)ildizi yo'q
E)aniqlab bo'lmaydi

43. $(\frac{4}{5})^x = 4$ tenglamaning yechimi qaysi oraliqqa tegishli? 98-05-30
A)$(-\infty;-1)$ B)$(0;1)$ C)$[2;\infty)$ D)$(-1;2)$ E)$(1;2)$

44. $(\frac{2}{3})^x = 2$ tenglamaning yechimi qaysi oraliqqa tegishli? 99-07-31
A)$(-\infty;-2)$ B)$(-1;0)$ C)$(1;\infty)$ D)$(-2;-1)$ E)$(0;1)$

45. $(0,5)^x = x+3$ tenglama nechta ildizga ega? 97-03-35
A)1 B)2 C)3 D)ildizi yo'q E)aniqlab bo'lmaydi

46. $m = \left(\frac{4}{7}\right)^{-2/3}$, $n = \left(\frac{49}{16}\right)^{4/3}$ va $k = \left(\frac{16}{49}\right)^{-1/4}$ 02-10-42
sonlarni o'sish tartibida joylashtiring.
A)$k<m<n$ B)$m<k<n$ C)$m<n<k$ D)$k<n<m$
E)$n<m<k$

47. Quyidagi sonlardan qaysi biri 1 dan katta? 98-02-30
$a = 0,7^{2,3}\cdot 0,3^{0,8}$; $b = 3,2^{-4,2}\cdot 1,2^{-0,8}$;
$c = 0,7^{-1,2}\cdot 0,6^{-0,4}$; $d = 0,6^{0,4}\cdot 0,3^{0,6}$;
$e = 0,4^0\cdot 3,5^{-1,3}$;
A)a B)b C)c D)d E)e

48. $a = 0,2^{-0,7}\cdot 0,3^{-0,6}$; $b = 0,8^{-1/3}\cdot 3^{0,4}$; 98-09-28
$c = 2^{0,7}\cdot 0,2^{-0,4}$; $d = 1,2^{0,4}\cdot 1,1^{1,5}$ sonlardan qaysi biri 1 dan kichik?
A)a B)b C)c D)d E)Bunday son yo'q

49. $b^{-5} > b^{-4}$ va $(4b)^5 < (4b)^7$ tengsizliklar bir vaqtda o'rinli bo'ladigan b ning barcha qiymatlarini toping. 98-09-29
A)$(0;1)$ B)$[\frac{1}{4};1]$ C)$(\frac{1}{4};1)$ D)$(0;1]$ E)$[0;1)$

50. $3^{-x} = 4 + x - x^2$ tenglama nechta ildizga ega? 00-09-30
A)Ø B)1 C)2 D)3 E)4

51. $2^{-x} = 2x - x^2 - 1$ tenglama nechta ildizga ega? 01-07-
A)4 B)3 C)2 D)1 E)Ø

52. $3 - 4x - 4x^2 = 2^{4x^2+4x+3}$ tenglamaning ildizlari yig'indisini toping. 01-08-34
A)2 B)–0,5 C)6 D)4,5 E)–6,5

53. $6x - x^2 - 5 = 2^{x^2-6x+11}$ tenglamaning ildizlari yig'indisini toping. 03-02-19
A)–5 B)–3 C)6 D)4 E)3

54. $7^{x^2+x} = 5^{-x^4}$ munosabat x ning nechta qiymatida o'rinli? 99-05-51
A)0 B)1 C)2 D)3 E)4

55. $\frac{1}{243}$ sonini 9 asosli daraja shaklida ifodalang. 99-08-16
A)$9^{-\frac{5}{2}}$ B)$9^{-\frac{3}{4}}$ C)$9^{-\frac{5}{3}}$ D)$9^{-\frac{3}{2}}$ E)$9^{-\frac{5}{4}}$

56. $5\cdot 4^{2n-3} - 20\cdot(2^{n-2})^4$ ifodani soddalashtiring. 99-08-20
A)2 B)4^{2n} C)4 D)2^{n-1} E)0

57. $y = 5^x - 5$ funksiya grafigi qaysi choraklardan o'tadi? 2006
A)I, III, IV B)I, IV C)III, IV D)I, II

2-§. Ko'rsatkichli tenglamalar, ularning sistemalari.

1. $4^{x-4} = 0,5$ tenglamani yeching. 99-01-29
A)3,5 B)4,5 C)–4,5 D)–3,5 E)Ø

2. $(3,5)^{x-5} = \left(\frac{4}{49}\right)^2$ tenglamani yeching. 99-06-08
A)3 B)2 C)1 D)4 E)5

3. $\left(\frac{2}{3}\right)^x = \sqrt[4]{1,5}$ tenglamaning ildizi 1 dan qancha kam? 00-01-36
A)1,75 B)0,75 C)1,5 D)2,1 E)1,25

4. $2^{|x-5|+2x} = 64$ tenglamani yeching. 00-07-36
A)1,5 B)1 C)2 D)0,5 E)1,8

5. $2^{x^2-6x-\frac{5}{2}} = 16\sqrt{2}$ tenglama ildizlarining ko'paytmasini toping. 01-05-13
A)–7 B)–2 C)3 D)2 E)7

6. $(0,1(6))^{3x-5} = 1296$ tenglamani yeching. 99-06-58
A)$\frac{1}{3}$ B)3 C)–3 D)$-\frac{1}{3}$ E)2

7. $\frac{2^{2x-1}\cdot 4^{x+1}}{8^{x-1}} = 64$ tenglamani yeching. 00-01-40
A)3 B)2 C)4 D)–2 E)–3

8. $0,125\cdot 4^{2x-3} = \left(\frac{\sqrt{2}}{8}\right)^{-x}$ tenglamani yeching. 00-03-32
A)2 B)–2 C)4 D)–6 E)6

9. $(0,25)^{2-x} = \frac{1}{2^{x+3}}$ tenglamani yeching. 01-07-30
A)2 B)3 C)$\frac{1}{2}$ D)$\frac{1}{3}$ E)$\frac{1}{4}$

10. $(\frac{1}{4})^{\frac{4-x^2}{2}} = 8^x$ tenglama ildizlarining ko'paytmasini aniqlang. 02-02-23
A)–4 B)6 C)4 D)–6 E)–5

11. $8^{|x^2-5|} = 16$ tenglamani yeching. 02-10-26
A)$\pm\sqrt{\frac{7}{3}}$ B)$\sqrt{3}$ C)± 3;–1 D)0;± 1 E)± 2

12. $\frac{2^{2x-1}\cdot 4^{x+1}}{8^{x-1}} = 64$ tenglamaning ildizi 12 dan qancha kam? 02-04-29
A)8 B)9 C)6 D)10 E)4

13. $\left(\frac{4}{3}\right)^x \cdot \left(\frac{3}{8}\right)^x = 2$ tenglamaning ildizi x_0 bo'lsa, quyidagi munosabatlardan qaysi biri o'rinli? 96-06-51
A) $x_0 > -1$ B) $x_0 < -1$ C) $x_0 = -1$
D) $\frac{x_0}{2} = -1$ E) to'g'ri javob keltirilmagan

14. $(0,75)^{x-1} = (1\frac{1}{3})^3$ tenglamani yeching. 97-01-76
A)1 B)–1 C)2 D)–2 E)0

15. $\left(3^{-x} - 9\right)\left(x^2 - 36\right) = 0$ tenglamaning ildizlari ko'paytmasini toping. 97-02-51
A)72 B)–6 C)36 D)–18 E)18

16. $\left(3^{-x} - 9\right)\left(x^2 - 49\right) = 0$ tenglamaning ildizlari yig'indisini toping. 97-12-50
A)5 B)9 C)–2 D)10 E)–3

17. $\left(\frac{6}{5}\right)^{x^3+27(x-1)} = \left(\frac{5}{6}\right)^{-9x^2}$ tenglamaning ildizini toping. 97-04-34
A)–3 B)4 C)5 D)3,5 E)3

18. $(0,8)^{3-2x} = (1,25)^3$ tenglamani yeching 97-06-57
A)0 B)1 C)2 D)3 E)4

19. $\left(\frac{5}{4}\right)^x \cdot \left(\frac{16}{5}\right)^x = 2\sqrt{2}$ tenglamani yeching. 97-08-51
A)1,25 B)0,5 C)0,25 D)1,5 E)0,75

20. $\left(\frac{25}{64}\right)^{7x^2-6} = \left(\frac{64}{25}\right)^{2+3x-6x^2}$ tenglamani yeching. 97-09-94
A)–4; 1 B)–1; 4 C)1; 4 D)–4; –1 E)3; 4

21. $6^{x-2} - \left(\frac{1}{6}\right)^{3-x} + 36^{\frac{x-1}{2}} = 246$ tenglamani yeching. 98-01-34
A)3 B)5 C)2 D)6 E)4

22. $2^{-4x^2+2} - 3 \cdot 2^{-4x^2} = 2^{-16}$ tenglamaning kichik ildizini toping. 98-02-31
A)2 B)–3 C)–2 D)–1 E)4

23. $\left(\frac{1}{7}\right)^{-2x+3} + 49^{x-1} + 7^{2x-1} = 399$ tenglamani yeching. 98-03-34
A)5 B)4 C)3 D)2 E)1,5

24. Agar $\frac{2^x \cdot 3^y}{2^y \cdot 3^x} = \frac{24}{81}$ bo'lsa, $x - y$ ning qiymatini toping. 01-06-45
A)6 B)5 C)7 D)3 E)6

25. $3^x = 9^{y+1}$ va $4^x = 5^y$ ekanligi ma'lum bo'lsa, $x + y$ ning qiymatini toping. 00-07-17
A)3,5 B)8 C)2 D)4 E)3

26. Agar $2^{x+1} = 4^y$ va $x + y = -4$ bo'lsa, $x - y$ ni toping 97-07-17
A)4 B)–2 C)2 D)–3 E)–1,5

27. Agar $3^{x-1} = 9^y$ va $2x - y = 5$ bo'lsa, $x - y$ ni toping. 97-03-17
A)2 B)3 C)–1 D)–0,5 E)–3

28. a ning qanday qiymatida $2^{4x} \cdot 4^a = 32$ va $3^x \cdot 3^a = 27$ tenglamalarning ildizlari o'zaro teng bo'ladi? 99-02-34
A)2,5 B)3 C)3,5 D)1,5 E)2

29. $\begin{cases} 9^{x+y} = 729, \\ 3^{x-y-1} = 1 \end{cases}$ $x^2 - y^2 = ?$ 00-03-30
A)1 B)4 C)3 D)2 E)–2

30. $\begin{cases} x^{y+1} = 27, \\ x^{2y-5} = \frac{1}{3} \end{cases}$ tenglamalar sistemasini yeching. 00-03-41
A)(2; 3) B)(2; 4) C)(4; 2) D)(3, 2) E)(2;2)

31. $\begin{cases} x^y = 9, \\ \frac{1}{324^y} = 6x \end{cases}$ tenglamalar sistemasi nechta yechimga ega? 01-02-24
A)Ø B)1 C)2 D)3 E)4

32. $\begin{cases} 2^x + 2^y = 5 \\ 2^{x+y} = 4 \end{cases}$ $xy = ?$ 02-01-58
A)0 B)1 C)2 D)3 E)6

33. Agar $2^{x^2} \cdot 2^{y^2} = 64$ va $2^{xy} = \sqrt{8}$ bo'lsa, $|x + y|$ ning qiymatini toping 03-04-21
A)4,5 B)3,5 C)2,5 D)4 E)3

34. $\frac{1}{27} \cdot \sqrt[4]{9^{3x-1}} = 27^{-\frac{2}{3}}$ tenglamani yeching. 99-06-27
A)–1 B)2 C)1 D)–2 E)3

35. $\sqrt[4]{9^{\frac{n-3}{5}}} = 243$ bo'lsa, n nechaga teng? 02-07-32
A)53 B)38 C)47 D)43 E)55

36. $16 \cdot (0,25)^{\frac{5-x}{4}} = 2^{x+1}$ tenglamani yeching 02-11-39
A)0 B)3 C)24; 0 D)15 E)24

37. $\sqrt[3]{9^{x-3}} = \frac{3}{\sqrt[3]{3}}$ tenglamani yeching. 97-01-67
A)3 B)4 C)5 D)1 E)0

38. $\sqrt[3]{25^{x-1}} = \frac{5}{\sqrt[5]{5}}$ tenglamani yeching. 97-06-60
A)1 B)5 C) $\frac{1}{4}$ D)2,2 E)0

39. $\sqrt{13^2-12^2}=\sqrt[x]{625}$ tenglamani yeching. 06-02-25
A)2 B)3 C)4 D)5 E)6

40. $\sqrt{5^2-4^2}=\sqrt[x]{81}$ tenglamani yeching. 03-06-45
A)2 B)4 C)3 D)6 E)5

41. Agar $3^{5x+1}+3^{5x-1}=30$ bo'lsa, $\frac{x}{x+1}$ ning qiymatini hisoblang. 99-03-18
A)$\frac{2}{5}$ B)$\frac{1}{3}$ C)$\frac{2}{7}$ D)$\frac{4}{9}$ E)$\frac{2}{3}$

42. 18 va $2^{x-4}+2^{x+1}=132$ tenglamaning ildizi orasidagi ayirmani toping. 98-09-31
A)9 B)10 C)8 D)11 E)12

43. $12\cdot4^{x^2}-2\cdot4^{x^2+2}+16\cdot4^{x^2-2}=-19\cdot4^{6x+2}$ tenglamaning ildizlarining yig'indisini toping. 03-09-18
A)2 B)6 C)–2 D)–6 E)8

44. $3^1\cdot3^2\cdot3^3\cdot\ldots\cdot3^x=\frac{1}{9^{-33}}$ tenglamani yeching. 96-01-34
A)12 va –11 B)11 C)12 D)33 E)–12 va 11

45. $4^4\cdot4^8\cdot4^{12}\ldots4^{4x}=0{,}25^{-144}$ tenglamani yeching. 96-09-85
A)14 B)9 C)–4 va 3 D)6 E)8

46. $5^2\cdot5^4\cdot5^6\cdot\ldots\cdot5^{2x}=0{,}04^{-28}$ tenglamani yeching. 96-10-37
A)5 B)10 C) 14 D)7 E)28

47. $3^2\cdot3^4\cdot3^6\cdot\ldots\cdot3^{2n}=\left(\frac{1}{81}\right)^{-5}$ tenglamani yeching 00-10-41
A)4 B)8 C)12 D)10 E)7

48. Tenglamani yeching. 03-08-31
$2^{x-4}+2^{x-2}+2^{x-1}=6{,}5+3{,}25+1{,}625+\ldots$
A)4 B)2 C)1 D)0 E)aniqlab bo'lmaydi

49. $\frac{\sqrt{3^x+3^x+3^x}}{\sqrt{3^x+3^x+3^x}}=\frac{1}{3}$, $x-?$ 03-07-12
A)4 B)5 C)6 D)7 E)8

50. $2^{\sqrt{x+2}}-2^{\sqrt{x+1}}=12+2^{\sqrt{x-1}}$ tenglamaning ildizlari qaysi sonlar oralig'iga tegishli? 02-02-22
A)(6;13) B)(2;7) C)(10;17) D)(1;6) E)(3;8)

51. $6\cdot9^{0.5x-2}+2\cdot3^{x-6}=56$ tenglamani yeching. 1-07-31
A)1 B)2 C)6 D)3 E)–2

52. $4^{x+1}-2^{x+4}+3\cdot2^{x+2}+48=0$ tenglamani yeching. 03-06-14
A)1 B)2 C)3 D)4 E)Ø

53. $25^{x^2+0.5}-5^{x^2}=5^{x^2+3}-25$ tenglamaning ildizlari yig'indisini toping. 02-09-37
A)0 B)1 C)$2\sqrt{2}$ D)2 E)4

54. $9^{x^2+1}+3^{2x^2-1}=\frac{28}{81}$ tenglamani yeching. 01-11-31
A)–2,5 B)–2 C)2 D)–1,5 E)ildizi yo'q

55. $3^{\sqrt{x}}-3^{1-\sqrt{x}}=\frac{26}{3}$ tenglamani yeching. 99-06-49
A)Ø B)9 C)2 D)0 E)4

56. $3\sqrt[4]{81}-10\sqrt[4]{9}+3=0$ tenglama ildizlarining yig'indisini toping. 00-03-29
A)0 B)3 C)4 D)5 E)7

57. $5^x-24=5^{2-x}$ tenglamani yeching. 1-01-20
A)–2 B)0 C)–1 D)1 E)2

58. $8\cdot4^{|x|}-33\cdot2^{|x|}+4=0$ tenglamaning ildizlari ko'paytmasini toping. 02-11-28
A)4 B)$\frac{1}{4}$ C)–4 D)$-\frac{1}{4}$ E)12

59. $27^x+12^x-2\cdot8^x=0$ tenglamaning ildizining uch baravarini toping. 96-07-43
A)–6 B)3 C)–3 D) 6 E)0

60. $9\cdot16^x-7\cdot12^x-16\cdot9^x=0$ tenglamaning ildizlari yig'indisini toping. 98-12-43
A)2 B)–2 C) 3 D)–1 E)1

61. $9^x+6^x=2\cdot4^x$ tenglamani yeching. 1-07-32
A)1 B)0 C)0; 1 D)2 E)–1

62. $5^x+7^x=12^x$ tenglama nechta ildizga ega? 02-02-58
A)1 B)2 C)3 D)cheksiz ko'p E)yechimi yo'q

63. x soni $4\sqrt[4]{81}-12\sqrt[4]{36}+9\sqrt[4]{16}=0$ tenglamaning ildizi bo'lsa, $x+3$ soni nechaga teng? 02-03-38
A)5 B)4 C)6 D)7 E)3

64. $\sqrt{5^x}+\sqrt{12^x}=\sqrt{13^x}$ tenglama nechta ildizga ega? 03-01-13
A)Ø B)1 C)2 D)3 E)4

65. $4\cdot9^x+12^x-3\cdot16^x=0$ tenglamani yeching. 3-08-39
A)1 B)–1; 1 C)2 D)3; 4 E)4

66. $4^x-3^{x-0.5}=3^{x+0.5}-2^{2x-1}$ tenglamani yeching. 00-03-27
A)1 B)–1 C)2 D)–2 E)1,5

67. $5^{x-3}-5^{x-4}-16\cdot5^{x-5}=2^{x-3}$ tenglamani yeching. 02-05-19
A)2 B)3 C)4,5 D)5 E)6

68. $3^{4x+5}-2^{4x+7}-3^{4x+3}-2^{4x+4}=0$ tenglamani yeching. 97-01-26
A)$\frac{1}{4}$ B)$-\frac{1}{4}$ C)1 D)2 E)$-\frac{3}{4}$

69. $2^{3x+7}+5^{3x+4}+2^{3x+5}-5^{3x+5}=0$ tenglamani yeching. 97-06-25
A)1 B)0 C)–1 D)2 E)$\frac{1}{3}$

70. $2^{5x+6} - 7^{5x+2} - 2^{5x+3} - 7^{5x+1} = 0$ tenglamani yeching. 97-11-26

A)1 B)2 C)3 D)0 E)$\frac{1}{5}$

71. $(\sqrt{2+\sqrt{3}})^x + (\sqrt{2-\sqrt{3}})^x = 4$ tenglamaning ildizlari nisbatini toping. 00-05-40

A)–1 B)–2 C)–3 D)1 E)3

72. $\left(\sqrt{3+2\sqrt{2}}\right)^x + \left(\sqrt{3-2\sqrt{2}}\right)^x = 6$ tenglama ildizlarining ko'paytmasini toping. 01-02-65

A)2 B)4 C)–4 D)–2 E)6

73. $(\sqrt{2-\sqrt{3}})^x + (\sqrt{2+\sqrt{3}})^x = 4$ tenglamaning butun yechimlari ko'paytmasini toping. 03-02-21

A)–1 B)1 C)4 D)–4 E)2

74. $\sqrt{x+0,5}(4^{x+1} + 4^{1-x} - 17) = 0$ tenglama ildizlarining ko'paytmasini toping. 03-09-16

A)2,5 B)1,5 C)0,5 D)–0,5 E)–1

75. $\left(4 \cdot 2^x + 2 \cdot 2^{-x} - 9\right) \cdot \sqrt{x+1} = 0$ tenglamaning ildizlari yig'indisini toping. 03-12-74

A)0 B)–3 C)–2 D)–1 E)4

76. x ning qanday qiymatlarida 2^{x-2}, 2^x va 2^{x^2} ifodalar geometrik progressiyaning dastlabki uchta hadidan iborat bo'ladi? 01-12-37

A)–2 va –1 B)–2 va 1 C)–1 va 2 D)–2 va 2 E)–1 va 1

77. $x^{\sqrt{x}} = \sqrt{x^x}$ tenglamaning ildizlari yig'indisini toping. 98-04-46

A)5 B)10 C)11 D)4 E)8

78. $\left|x^2 - 6x + 8\right|^{x-6} = \left|x^2 - 6x + 8\right|$ tenglamaning nechta ildizi bor? 98-03-31

A)1 B)2 C)3 D)4 E)5

79. $|x^2 - 2x - 1|^{x-7} = |x^2 - 2x - 1|$ tenglamaning nechta ildizi bor? 98-10-78

A)1 B)2 C)3 D)4 E)5

80. $2^x = 4^{y+1}$ va $3x = 6 - 2y$ ekanligi ma'lum bo'lsa, $x + y$ ning qiymatini toping. 97-10-17

A)4 B)–1,5 C)–3 D)2 E)1

81. $5^x - 5^{3-x} = 20$ tenglamani yeching. 99-08-02

A)–5 B)1 C)–5; 1 D)2; 5 E)2

82. $2^x x^2 - 2x^2 + 2 - 2^x = 0$ tenglamaning ildizlari ko'paytmasini toping. 99-10-36

A)1 B)–1 C)2 D)–2 E)–0,5

83. $3^{x+1} \cdot 27^{x-1} = 9^7$ tenglamaning ildizi 10 dan qancha kam? 99-10-39

A)5 B)4 C)8 D)6 E)7

84. Agar $2^{3x} \cdot 2^{x-2} = 4^{x+1}$ bo'lsa, $\frac{x^2-1}{x+2}$ ning qiymatini hisoblang. 02-05-21

A)$\frac{2}{3}$ B)0,75 C)0,6 D)0 E)2,5

85. Agar $4^{x-1} - \frac{1}{2} \cdot 2^{2x} = -64$ bo'lsa, $x + 13$ ning qiymatini toping. 02-12-43

A)19 B)15 C)17 D)13 E)21

86. $\left(\frac{\sqrt{5}}{3}\right)^{2x^2-5x} = 1,8$ tenglamaning ildizlari yig'indisini toping. 03-03-31

A)5 B)–5 C)2,5 D)–2,5 E)1,25

3-§. Ko'rsatkichli tengsizliklar.

1. $14 \le 2^n < 64$ qo'shtengsizlikni qanoatlantiruvchi natural sonlar nechta? 98-05-16

A)2 B)3 C)1 D)4 E)5

2. n ning nechta natural qiymati $9 \le 3^n \le 79$ qo'shtengsizlikni qanoatlantiradi? 99-07-18

A)1 B)3 C)4 D)2 E)5

3. $0,25^x \ge 0,5^{4x-8}$ tengsizlikni yeching. 96-09-64

A)$(-\infty; 4)$ B)$(-\infty; 2]$ C)$[2; \infty)$ D)$[4; \infty)$ E)$(-\infty; 4]$

4. $(\sqrt{6})^x \le \frac{1}{36}$ tengsizlikni yeching. 99-01-30

A)$(-\infty; -4]$ B)$[-4; \infty)$ C)$[-4; 4]$ D)Ø E)$(-\infty; 6]$

5. $(\frac{1}{2})^{20-2x} > 1$ tengsizlikning eng kichik butun yechimini toping. 99-02-35

A)6 B)11 C)10 D)9 E)8

6. $2^{3-6x} > 1$ tengsizlikning eng katta butun yechimini toping. 99-06-16

A)0 B)1 C)–1 D)–2 E)3

7. $(\frac{1}{2})^{2x-1} > \frac{1}{16}$ tengsizlikni yeching. 00-08-10

A)$(-\infty; 2,5)$ B)$(2,5; \infty)$ C)$(-\infty; 0) \cup (0; 2,5)$ D)$(-2,5; \infty)$ E)$\{2,5\}$

8. $3^{\frac{1}{x+1}} > 9$ tengsizlikni yeching. 01-01-21

A)$(-1; 1)$ B)$(-1; -\frac{1}{2})$ C)$(-\frac{1}{2}; 1)$ D)$(0; 1)$ E)$(-\frac{1}{2}; 0)$

9. x ning qanday qiymatlarida $y = 5^x - 5$ funksiya musbat qiymatlarni qabul qiladi? 97-06-76

A)$x < 1$ B)$x > 1$ C)$x \ge 1$ D)$x \le 2$ E)$x > 3$

10. $\begin{cases} 5^x + 5^{-x} = 13 \\ 28^x < 17^x \end{cases}$ $5^{-x} - 5^x$? 03-10-32

A)$\sqrt{135}$ B)$-\sqrt{145}$ C)$\sqrt{175}$ D)$\sqrt{165}$ E)$-\sqrt{155}$

11. $x^2 \cdot 7^x + 1 > 7^x + x$ tengsizlikni yeching. 03-12-56
A)(1;∞) B)(– 1;0) C)(–1;1) D)(–∞;0)U(1;∞)
E)(–1; 1)U(1; ∞)

12. $(\frac{4}{9})^x(\frac{3}{2})^x > (\frac{2}{3})^6 \cdot (\frac{2}{3})^{-2x}$ tengsizlikning eng katta butun yechimini toping. 98-02-32
A)2 B)3 C) 4 D)1 E)5

13. $0,6^{x^2} \cdot 0,2^{x^2} > (0,12^x)^4$ tengsizlikning eng kichik butun yechimi 10 dan qancha kam? 98-09-30
A)10 B)8 C)7 D)9 E)6

14. Nechta natural son $(0,7)^{2+4+6+\ldots 2n} > (0,7)^{72}$ tengsizlikni qanoatlantiradi? 01-02-70
A)7 B)8 C)9 D)10 E)12

15. $5^{\frac{1}{x}} + 5^{\frac{1}{x}+2} > 130$ tengsizlikni yeching. 02-02-25
A)(0;1) B)(0;3) C)$(0;\frac{3}{4})$ D)(1;2) E)$(1;\frac{3}{2})$

16. $3^{\frac{1}{x}} + 3^{\frac{1}{x}+3} > 84$ tengsizlikni yeching. 02-03-39
A)(0;1) B)(–∞; 0) C)(0;1)U(1;∞) D)(1; ∞)
E)(0; ∞)

17. $\frac{1}{8} \cdot 2^{4x-2} > \left(\sqrt{2}\right)^{10}$ tengsizlikni qanoatlantiruvchi eng kichik butun sonni toping. 03-04-30
A)2 B)1 C)3 D)4 E)5

18. $0,5^{x^2-4} > 0,5^{3x}$ tengsizlikning butun yechimlari o'rta arifmetigini toping. 01-09-18
A)1,5 B)2 C)1 D)3 E)2,5

19. $3^{3x-2} + 3^{3x+1} - 3^{3x} < 57$ tengsizlikni yeching. 03-06-58
A)x>1 B)x<$-\frac{1}{2}$ C)x<1 D)x>$\frac{2}{3}$ E)x<$\frac{2}{3}$

20. $3^{x+2} + 3^{x+3} \le 972$ tengsizlikning natural sonlardan iborat yechimlari yig'indisini toping. 03-07-79
A)1 B)3 C)6 D)10 E)15

21. $0,2^{x^2+1} + 0,2^{x^2-1} < 1,04$ tengsizlikni yeching. 97-02-54
A)(–∞; –1) B)(1; ∞) C)$(-\infty;-1]\cup[1;\infty)$
D)$(-\infty;-1)\cup(1,\infty)$ E) [– 1;1]

22. $\left(0,2^{x(x+5)}\right) > 1$ tengsizlikning eng katta butun manfiy yechimini toping. 97-08-54
A)-5 B)-4 C)-3 D)-1 E)-2

23. $x^2 5^x - 5^{2+x} < 0$ tengsizlikni yeching. 00-03-31
A)(– ∞;–5) B)(5;∞) C)(–∞;–5)U(5;∞) D)(–5; 5) E)(– ∞; ∞)

24. $x^2 \cdot 5^x - 5^{2+x} \le 0$ tengsizlikning tub sonlardan iborat yechimlari nechta? 01-07-33
A)0 B)1 C)2 D)3 E)4

25. $x^2 \cdot 3^x - 3^{x+2} \le 0$ tengsizlikning butun sonlardan iborat eng katta va eng kichik yechimlari ko'paytmasini toping. 02-12-45
A)–8 B)–12 C)–9 D)–6 E)–15

26. $2^{\sqrt{x}-1} \cdot (4x^2 - 4x + 1) > 0$ tengsizlikni yeching. 97-06-55
A)(1;∞) B)[1;∞) C)$[\frac{1}{2};\infty)$ D)(–∞; ∞)
E)$[0;\frac{1}{2})\cup(\frac{1}{2};\infty)$

27. $4^x - 5 \cdot 2^{x+1} + 16 \le 0$ tengsizlikni yeching. 02-05-20
A)(0;1)U(3; ∞) B)(1;3) C)[1;3]
D)[0;1]U[3;+∞) E)[3;+∞)

28. $3^{8x} - 4 \cdot 3^{4x} \le -3$ tegsizlikning butun yechimlari yig'indisini toping. 00-06-31
A)8 B)7 C)4 D)2 E)0

29. $2 \cdot 3^x + \frac{7}{3^x} < 61 \cdot 3^{-x}$ tengsizlikning eng katta butun yechimini toping. 99-03-19
A)2 B)–2 C)1 D)4 E)0

30. $9^{-x} - 28 \cdot 3^{-x-1} + 3 < 0$ tengsizlikni yeching. 01-08-30
A)(–2;1) B)(–∞;2] C)[1;∞) D)(–2;0) E)(0;1)

31. $\left(\frac{1}{3}\right)^{\sqrt{x+2}} \ge 3^{-x}$ tengsizlikni yechmg. 01-07-34
A)[–1;2] B)(–∞; ∞) C)(–∞; –1)U[2;∞)
D)[–1;∞) E)[2;∞)

32. $(1,25)^{1-x} > (0,64)^{2(1+\sqrt{x})}$ tengsizlikning yechimlari orasida nechta tub son bor? 02-05-22
A)5 B)7 C)9 D)12 E)cheksiz ko'p

33. $\frac{2 \cdot 7^x}{7^{2x}-1} \ge \frac{7^x}{7^x-1} - \frac{1}{7^x+1}$ tengsizlikni yeching. 03-09-17
A)(0,∞) B)(–∞; 0) C)(–∞;0] D)(– 1;1) E)(1;∞)

34. $3^{|x|+2} \le 81$ tengsizlikning butun yechimlari yig'indisini toping. 01-08-32
A)–1 B)3 C)4 D)0 E)5

35. $x^2 \cdot 3^x - 3^{x+1} \le 0$ tengsizlikning butun sonlardan iborat yechimlari nechta? 03-03-32
A)Ø B)1 C)2 D)3 E)cheksiz ko'p

36. $(\frac{1}{2})^{16-2x} \le 4$ tengsizlikning eng katta butun yechimini toping. 2006
A)10 B)6 C)9 D)11

1-§. Logarifm ta'rifi. Xossalari.

1. $\log_2 \lg 100$ ni hisoblang.
A)1 B)4 C)3 D)2 E)10

2. $\log_5 \ln e^5$ ni hisoblang.
A)5 B)5e C)50 D)10 E)1

3. $\dfrac{\log_2 729}{\log_2 9}$ ni hisoblang.
A)2,5 B)3 C)3,5 D)2 E)1,5

4. $\log_{2\sqrt{2}} 128$ ni hisoblang.
A)$4\frac{2}{3}$ B)$3\frac{2}{3}$ C)$2\frac{2}{3}$ D)$3\frac{3}{4}$ E)$4\frac{3}{4}$

5. $\log_{2\sqrt{2}} 512$ ni hisoblang.
A)8 B)6 C)4 D)10 E)12

6. $\dfrac{\lg(7-4\sqrt{3})}{\lg(2-\sqrt{3})}$ ni soddalashtiring.
A)2 B)1 C)$\sqrt{3}$ D)-1 E)3

7. $m = 2\log_2 8 - \log_2 4$, $n = \log_2 400 - 2\log_2 5$, $p = \log_5 125 + \log_5 5$ va $q = \ln 12e - \ln 12$ sonlardan qaysi biri qolgan uchtasiga teng emas?
A)m B)n C)p D)q E)hech qaysinisi

8. Quyidagi sondardan qaysi biri 2 dan kichik?
A)$\log_4 2 + \log_4 8$ B)$\log_2 36 - 2\log_2 3$
C)$2\log_2 5 - \log_2 25$ D)$\log_2 6 + \frac{1}{2}\log_2 9$
E)$\log_3 45 - \log_3 5$

9. Quyidagi sonlardan qaysi biri 1 ga teng emas?
A)$\log_3 12 - \log_3 4$ B)$\frac{1}{2}\log_4 36 + \log_4 \frac{2}{3}$
C)$\log_5 125 - \frac{1}{2}\log_5 625$ D)$2\log_2 5 - \log_2 30$
E)$\ln 4e - 2\ln 2$

10. Quyidagi keltirilgan sonlardan kattasini belgilang.
A)$\log_2 18 - \log_2 9$ B)$3^{\log_3 6}$ C)$\lg 25 + \lg 4$
D)$\log_{13} 169^2$ E)$\dfrac{\log_8 4}{\log_8 64}$

11. $n = \log_{1/2} 4 + \log_{1/2} 2$,
$m = \log_{1/3} 15 - \log_{1/3} 5$ va $p = \ln e^{-2}$ sonlarni kamayish tartibida joylashtiring.
A)$p > m > n$ B)$m > n > p$ C)$n > p > m$
D)$p > n > m$ E)$m > p > n$

12. $2\log_2 12 + \log_2 20 - \log_2 15 - \log_2 3$ ni hisoblang.
A)4 B)5 C)7 D)3 E)6

13. $\log_{\frac{1}{6}} 2 + \log_{\frac{1}{6}} 3$ ni hisoblang.
A)-3 B)-1 C)0 D)1 E)2

14. $2\log_4 8 - 3\log_8 4 + \log_2 32 + 18$ ni hisoblang.
A)22 B)24 C)26 D)20 E)28

15. $M = \log_5 100 - \log_5 4$, $N = 4\log_2 3 - \log_2 9$, $P = \log_6 72 - \log_6 2$, $Q = \log_4 16 + \log_4 \frac{1}{8}$ sonlardan qaysi biri 2 dan kichik?
A)N B)P C)M D)Q E)hech qaysinisi

16. $(\log_3 27 - \log_3 9)\cdot(\log_3 48 + \log_3 \frac{1}{16}) + \log_3 81$ ni hisoblang.
A)8 B)7 C)4 D)5 E)6

17. $\dfrac{3\lg 2 + 3\lg 5}{\lg 1300 - \lg 13}$ ning qiymatini hisoblang.
A)1,8 B)1,6 C)2,3 D)2 E)1,5

18. $343^{\log_{49} 4}$ ni hisoblang.
A)8 B)4 C)7 D)6 E)2

19. $4^{\log_2\left(\sqrt[3]{2\sqrt{2}}\right)^2}$ ni hisoblang.
A)16 B)2 C)4 D)64 E)$4\sqrt[3]{4}$

20. $(\sqrt[3]{7})^{\log_9 7}$ ni hisoblang.
A)10 B)9 C)3 D)7 E)11

21. $(\sqrt{3})^{\log_4 3}$ ni hisoblang.
A)2 B)3 C)4 D)6 E)7

22. $(\sqrt[3]{5})^{\log_4 5}$ ni hisoblang.
A)8 B)7 C)5 D)4 E)9

23. $\left(2^{\log_3 16}\right)^4$ ni hisoblang.
A)$\sqrt{3}$ B)4 C)2 D)$3^{\frac{1}{4}}$ E)3

24. $\log_3^{-1} \sqrt[3]{3\sqrt[3]{3\sqrt[3]{3}}}$ ning qiymatini toping.
A)27 B)-27 C)$\frac{1}{27}$ D)3 E)9

25. $\log_8 5^{2\log_{25} 32}$ ni hisoblang.
A)$\frac{1}{2}$ B)$\frac{1}{3}$ C)$\frac{5}{3}$ D)2 E)$\frac{7}{3}$

26. $\log_2(\log_2 a^8)$ $\log_2 \log_2 a$ dan qanchaga ko'p?
A)2,5 B)3,2 C)3 D)4 E)2

27. $\dfrac{\lg^2(x^3)}{\lg^3(x^2)}\cdot \lg\sqrt{x}$ ni soddalashtiring.
A)$\frac{9}{16}$ B)$\frac{3}{4}$ C)$\frac{7}{9}$ D)$\frac{3}{2}$ E)$\frac{1}{8}$

28. $\left(\frac{\log_6 27+2\log_6 2}{\log_6 \sqrt[3]{0{,}25}+\log_6 \frac{1}{3}}\right)^3$ ni hisoblang. 02-10-73

A)–27 B)27 C)–8 D)$8\log_6 27$ E)16

29. $\log_2(5-\sqrt{10})+\log_{\frac{1}{2}}(\sqrt{5}-\sqrt{2})$ ni hisoblang. 02-11-31

A)$\sqrt{5}$ B)5 C)25 D)4 E)$5\sqrt{5}$

30. $\frac{5^{\lg 20}}{20^{\lg 5+1}}$ ni hisoblang. 93-04-15

A)0,25 B)0,1 C)0,2 D)0,05 E)0,01

31. $\frac{5^{-\log_{\sqrt{5}}\sqrt[4]{3}}}{9^{1+\log_{0,5}2}}$ ni hisoblang. 99-05-15

A)$\frac{\sqrt{3}}{9}$ B)$\frac{\sqrt{3}}{3}$ C)$\frac{\sqrt[4]{27}}{9}$ D)$\frac{\sqrt[4]{3}}{3}$ E)$\frac{1}{3}$

32. $0{,}8\cdot\left(1+9^{\log_3 8}\right)^{\log_{65}5}$ ni soddalashtiring. 01-07-23

A)2 B)3 C)4 D)5 E)8

33. Agar $7^{\log_5 b}=4$ bo'lsa, $b^{\log_5\sqrt{7}}$ ni hisoblang. 02-08-12

A)2 B)3 C)1 D)4 E)5

34. $3\sqrt{2^{\log_8 125}+\log_3 5\cdot\log_5 27}$ ni hisoblang. 02-08-15

A)2 B)1 C)3 D)4 E)5

35. $\frac{1}{6}(1+9^{\log_3 7})^{\log_{50}3}$ ni hisoblang. 02-09-34

A)1 B)0,5 C)3 D)9 E)0,75

36. $\ln\left(3^{\log_3 0{,}64}+8^{\log_8 0{,}36}\right)$ ning qiymati -11 dan qancha ko'p? 03-04-32

A)10 B)9 C)11 D)12 E)13

37. $3^{\sqrt{\log_3 2}}-2^{\sqrt{\log_2 3}}-1$ ni hisoblang. 03-11-82

A)0 B)1 C)2 D)-1 E)-2

38. $5^{\sqrt{\log_5 a}}-a^{\sqrt{\log_a 5}}\ (a>1)$ ni soddalashtiring. 03-12-58

A)a B)a^2 C)$5a$ D)1 E)0

39. $\frac{1}{\log_2 4}+\frac{1}{\log_4 4}+\frac{1}{\log_8 4}+\frac{1}{\log_{16}4}+\frac{1}{\log_{32}4}+\frac{1}{\log_{64}4}+\frac{1}{\log_{128}4}$ ni hisoblang 02-03-33

A)14 B)16 C)7 D)32 E)8

40. $\log_{\frac{1}{3}}\frac{\sqrt{3}}{7+2\sqrt{10}}+\log_{\sqrt{3}}\frac{1}{\sqrt{5}+\sqrt{2}}$ ni hisoblang. 03-09-19

A)-1 B)-2 C)2 D)$-\frac{1}{2}$ E)$\frac{1}{2}$

41. $\log_5\log_5\sqrt[5]{5\sqrt{5\sqrt{5\sqrt{5}}}}$ ni hisoblang 03-05-39

A)-4 B)$-\frac{1}{5}$ C)$-\frac{1}{4}$ D)4 E)2

42. $100^{\frac{1}{2}\lg 27-\lg 3}\cdot 10$ ni hisoblang. 99-02-31

A)20 B)40 C)30 D)10 E)50

43. $100^{2\lg 5-\lg 15}$ ni hisoblang. 00-01-35

A)$2\frac{4}{9}$ B)2,4 C)$2\frac{8}{9}$ D)$2\frac{7}{9}$ E)$3\frac{1}{9}$

44. $49^{1-\log_7 2}+5^{-\log_5 4}$ ning qiymatini toping. 01-05-16

A)12,5 B)13 C)14 D)23 E)25

45. $\log_9 17\cdot\log_{17}7\cdot\log_7 3$ ni hisoblang. 99-06-13

A)$\frac{7}{14}$ B)$\frac{1}{7}$ C)1 D)2 E)$\frac{1}{14}$

46. $\log_3 2\cdot\log_4 3\cdot\log_5 4\cdot\log_6 5\cdot\log_7 6\cdot\log_8 7$ nihisoblang. 00-05-66

A)$\frac{1}{2}$ B)$\frac{1}{3}$ C)$\frac{1}{4}$ D)$\frac{1}{5}$ E)$\frac{1}{7}$

47. $2\log_2 3\cdot\log_3 2\cdot\log_3\frac{1}{81}$ ni hisoblang. 00-07-31

A)-6 B)-9 C)-4 D)-8 E)-5

48. $\sqrt{25^{\frac{1}{\log_6 5}}+49^{\frac{1}{\log_8 7}}}$ ni hisoblang. 00-08-43

A)10 B)$\sqrt{73}$ C)1 D)12 E)14

49. $36^{\log_6 5}+10^{1-\lg 2}-3^{\log_6 36}$ ni soddalashtiring. 00-08-44

A)21 B)43 C)13 D)1 E)0

50. $lg\,8\,log_2 10+log_5 9\,log_3 5$ ni soddalashtiring. 01-06-37

A)4 B)3 C)6 D)5 E)7

51. $\frac{\log_3 256\cdot\log_2\frac{1}{81}}{\log_5\frac{1}{16}\cdot\log_4 125}$ ni hisoblang. 01-10-33

A)$4\frac{2}{3}$ B)$5\frac{2}{3}$ C)$5\frac{1}{3}$ D)$4\frac{1}{3}$ E)$6\frac{2}{3}$

52. $\log_5 2\log_4 243\log_2 5\log_3 4$ ni hisoblang. 01-11-25

A)4 B)3 C)5 D)6 E)2

53. $\frac{\log_2 729\cdot\log_3\frac{1}{256}}{\log_7 216\cdot\log_6 343}$ ni hisoblang. 02-06-36

A)$-3\frac{1}{3}$ B)$\frac{2}{3}$ C)$4\frac{2}{3}$ D)$-5\frac{1}{3}$ E)$-5\frac{2}{3}$

54. $\frac{1+2\log_3 2}{(1+\log_3 2)^2}+\log_6^2 2$ ni hisoblang. 03-02-20

A)2 B)0,5 C)1 D)$\frac{1}{4}$ E)$\log_3 2$

55. $\log_3 4\cdot\log_4 5\cdot\log_5 6\cdot\log_6 7\cdot\log_7 8\cdot\log_8 9$ ni hisoblang. 96-09-84

A)1 B)3 C)6 D)2 E)9

56. $\lg 5=0{,}7$ bo'lsa, $\log_5 10$ ni toping. 01-06-39

A)0,3 B)$1\frac{3}{4}$ C)1,4 D)$1\frac{3}{7}$ E)1,7

57. $[\lg 28]+[\lg 0{,}026]$ yig'indini hisoblang. Bunda $[a]$ yozuv a sonning butun qismini bildiradi.
A)0 B)1 C)–1 D)–2 E)2

58. Agar $a^2+b^2=7ab$ bo'lsa, $\dfrac{2\cdot\lg\left(\dfrac{a+b}{3}\right)}{\lg a+\lg b}$ ni hisoblang. $(a>0,\ b>0)$
A)1 B)–1 C)2 D)–2 E)$\dfrac{1}{2}$ 01-03-28

59. Agar $\log_a x=2$, $\log_b x=3$ va $\log_c x=6$ bo'lsa, $\log_{abc} x$ ni toping.
A)$\dfrac{2}{3}$ B)$\dfrac{5}{6}$ C)1 D)$\dfrac{4}{3}$ E)$\dfrac{2}{3}$ 00-03-33

60. $0{,}2^{\log_5\left(4+1+\frac{1}{4}+\ldots\right)}$ ni hisoblang.
A)$\dfrac{3}{16}$ B)$\dfrac{1}{8}$ C)$\dfrac{1}{4}$ D)$\dfrac{5}{16}$ E)0,2 01-09-26

61. $(0{,}125)^{\log_2\sqrt{2}\left(\frac{1}{4}-\frac{1}{8}+\frac{1}{16}-\frac{1}{32}+\ldots\right)}$ ni hisoblang.
A)16 B)25 C)36 D)32 E)24 01-10-16

62. $\log_{128}\left((0{,}25)^{\log_{16}\left(\frac{1}{3}+\frac{1}{9}+\frac{1}{27}+\ldots\right)}\right)$ ni hisoblang.
A)$\dfrac{2}{7}$ B)$\dfrac{3}{8}$ C)$\dfrac{1}{14}$ D)$\dfrac{2}{5}$ E)$\dfrac{1}{12}$ 02-06-20

63. $\dfrac{\log_2^2 14+\log_2 14\cdot\log_2 7-2\log_2^2 7}{\log_2 14+2\log_2 7}$ ni soddalashtiring.
A)2 B)$\log_2 7$ C)$-\log_2 7$ D)1 E)–2,5 98-01-33

64 $\dfrac{2\log_3^2 2-\log_3^2 18-\log_3 2\cdot\log_3 18}{2\log_3 2+\log_3 18}$ ni soddalashtiring.
A)1 B)$\dfrac{1}{2}$ C)–2 D)$-\dfrac{1}{2}$ E)2 98-06-33

65. $\dfrac{\log_5^2 15-\log_5^2 3+2\log_5 15+2\log_5 3}{\log_5 15+\log_5 3}$ ifodaning qiymatini ko'rsating.
A)1 B)2 C)3 D)5 E)4 99-04-55

66 $\dfrac{\log_3 12-\log_3 4}{\log_{36} 3-\log_{108} 3}$ ni hisoblang
A)3 B)2 C)1 D)6 E)$\dfrac{1}{3}$ 98-12-74

67 $\dfrac{\log_5 30-\log_5 150}{\log_{30} 5-\log_6 5}$ ni hisoblang.
A)1 B)–1 C)$\dfrac{1}{2}$ D)$\dfrac{1}{3}$ E)2 02-02-53

68 Agar $\log_3(\sqrt[3]{\sqrt{83}+\sqrt{2}}\cdot\sqrt[3]{\sqrt{245}+\sqrt{2}})=t$ bo'lsa, $\log_3(\sqrt[3]{\sqrt{83}-\sqrt{2}}\cdot\sqrt[3]{\sqrt{245}-\sqrt{2}})$ ning qiymatini hisoblang.
A)$3+t$ B)$2+t$ C)$2-t$ D)$3-t$ E)$3t$ 01-11-55

69. Agar $\log_2(\sqrt{3}-1)+\log_2(\sqrt{6}-2)=a$ bo'lsa, $\log_2(\sqrt{3}+1)+\log_2(\sqrt{6}+2)$ yig'indini toping.
A) $\sqrt{6}-a$ B)$\sqrt{3}-a$ C) $\sqrt{2}-a$ D)$3-a$ E)$2-a$ 02-11-32

70. $\left(\dfrac{1}{\sqrt{2}-1}\right)^{\frac{\log_6\log_6(\sqrt{2}+1)}{\log_6(\sqrt{2}+1)}}$ ni soddalashtiring.
A)$\log_6(\sqrt{2}+1)$ B)$\log_6(\sqrt{2}-1)$ C)$\dfrac{1}{\sqrt{2}-1}$ D)$\sqrt{2}+1$ E)1 99-01-28

71. Agar $\log_2 a=2$ va $\log_3 b=2$ $\log_6 ab$ ning qiymatini hisoblang.
A)–2 B)3 C)–3 D)4 E)2 99-10-35

72. Agar $2^n=5$ bo'lsa, $\lg 2$ ni n orqali ifodalang.
A)$\dfrac{1}{n}$ B)$n+1$ C)n D) $\dfrac{n+1}{2}$ E)$\dfrac{1}{n+1}$ 96-01-33

73. Agar $\log_2 3=a$ bo'lsa, $\log_8 0{,}75$ ni a orqali ifodalang.
A)$\dfrac{1}{3}(a-1)$ B)$\dfrac{1}{3}(a+1)$ C)$\dfrac{1}{3}(a-2)$
D)$\dfrac{1}{3}(a+2)$ E)$\dfrac{1}{3}(2-a)$ 00-10-34

74. $a=\log_{98}56$ bo'lsa, $\log_7 2$ ni a orqali ifodalang.
A)$\dfrac{3-a}{2a-1}$ B)$\dfrac{2a-1}{3-a}$ C)$\dfrac{a-3}{2a-1}$ D)$\dfrac{1-2a}{3-a}$
E)$\dfrac{a-2}{3-a}$ 96-03-86

75. $a=\log_{50}40$ bo'lsa, $\log_5 2$ ni a orqali ifodalang.
A)$\dfrac{3a-1}{2-a}$ B)$\dfrac{a-3}{1-2a}$ C)$\dfrac{a-3}{2a-1}$ D)$\dfrac{2a-1}{a-3}$
E)$\dfrac{1-2a}{a-3}$ 96-09-28

76 $a=\log_{147}63$ bo'lsa, $\log_7 3$ ni a orqali ifodalang.
A)$\dfrac{1-2a}{a-2}$ B)$\dfrac{2a-1}{a-2}$ C)$\dfrac{a-2}{1-2a}$ D)$\dfrac{a-2}{2a-1}$
E)$\dfrac{a-2}{2a+1}$ 96-12-86

77 $a=\log_{36}108$ bo'lsa, $\log_3 3$ ni a orqali ifodalang.
A)$\dfrac{2+2a}{2a+3}$ B)$\dfrac{2(1-a)}{2a-3}$ C)$\dfrac{2(1-a)}{2a-3}$ D)$\dfrac{2(1-a)}{2a+3}$
E)$\dfrac{1-2a}{2a+3}$ 98-05-36

78. $a = \log_6 108$ bo'lsa, $\log_2 3$ ni a orqali ifodalang. 98-10-77

A) $\frac{a+2}{3+a}$ B) $\frac{a-2}{3+a}$ C) $\frac{2-a}{3+a}$ D) $\frac{a-2}{3-a}$ E) $\frac{3+a}{a+2}$

79. Agar $\lg 5 = c$ bo'lsa, $\lg 250$ nimaga teng? 02-02-21

A) $2c+1$ B) $2c-1$ C) $\frac{3c+1}{2}$ D) $3c+1$

E) $\frac{4c-5}{2}$

80. Agar $\log_4 a = \log_8 b$ bo'lsa, $\log_a b$ ning qiymatini toping. 02-05-23

A) $\frac{3}{2}$ B) $\frac{2}{3}$ C) 2 D) $-\frac{3}{2}$ E) $-\frac{2}{3}$

81. Agar $\log_4 125 = a$ bo'lsa, $\lg 64$ ni a orqali ifodalang. 96-10-36

A) $\frac{3}{2}a+4$ B) $\frac{3}{2}a+6$ C) $\frac{18}{2a+3}$

D) $\frac{6}{3a+2}$ E) $3a+2$

82. Agar $\log_a 256 = 2{,}4$ bo'lsa, $\log_a 4 - \log_a 2$ ni hisoblang. 98-02-33

A) 0,2 B) 0,4 C) 0,15 D) 0,28 E) 0,3

83. Agar $\log_{12} 2 = a$ bo'lsa, $\log_6 16$ ning qiymatini toping. 00-01-38

A) $\frac{4a}{1+a}$ B) $\frac{2a}{1-a}$ C) $\frac{4a}{1-a}$ D) $\frac{3a}{1+a}$ E) $\frac{3a}{1-a}$

84. Agar $\log_{0,5} 27 = a$ bo'lsa, $\log_{\sqrt{3}} \sqrt[6]{1{,}5}$ ning qiymatini toping. 00-06-32

A) $\frac{1}{3} + a^{-1}$ B) $a^2 - 1$ C) $3 + a^{-1}$

D) $1 + a^{-3}$ E) $\sqrt[3]{a} - \frac{1}{3}$

85. Agar $\lg 5 = a$, $\lg 3 = b$ bo'lsa, $\log_{30} 8$ ni a va b orqali ifodalang. 00-08-38

A) $\frac{3-3a}{1+b}$ B) $\frac{3(1-b)}{1+a}$ C) $\frac{3(a-b)}{a+b}$

D) $\frac{b-1}{a+1}$ E) $\frac{a+1}{1-b}$

86. Agar $\log_a 27 = b$ bo'lsa, $\log_{\sqrt{3}} \sqrt[6]{a}$ ni toping. 00-10-66

A) $\frac{1}{b}$ B) $\frac{2}{b}$ C) $-\frac{b}{2}$ D) $2b$ E) $2b^2$

87. Agar $\log_{0,2} 27 = a$ bo'lsa, $\log_{\sqrt{3}} \sqrt[6]{1{,}8}$ ni a orqali ifodalang. 01-08-31

A) $a^2 - \frac{2}{3}$ B) $a^{-1} + 1{,}5$ C) $a^{-3} + 2$

D) $\sqrt[3]{a} - 2$ E) $a^{-1} + \frac{2}{3}$

88. Agar $\lg 2 = a$ va $\lg 3 = b$ bo'lsa, $\log_9 20$ ni a va b orqali ifodalang. 02-08-13

A) $\frac{1+a}{2b}$ B) $\frac{1-a}{2b}$ C) $\frac{b}{1+2a}$ D) $\frac{b}{1-2a}$ E) $\frac{a+b}{a-b}$

89. Agar $\lg 2 = a$ va $\lg 7 = b$ bo'lsa, $\log_{70} 5$ ni a va b orqali ifodalang. 97-04-33

A) $\frac{1+a}{1+b}$ B) $\frac{1-a}{1+b}$ C) $\frac{a+b}{b-1}$ D) $\frac{a-1}{a+b}$

E) $\frac{1-a}{1-a+b}$

90. $\log_3 20 = a$ va $\log_3 5 = b$ bo'lsa, $\log_4 500$ ni a va b orqali ifodalang. 97-09-93

A) $\frac{a+b}{a-b}$ B) $\frac{a+2b}{a+b}$ C) $\frac{a+2b}{a-b}$ D) $\frac{a-b}{a+2b}$

E) $\frac{a-b}{a+b}$

91. $\log_3 5 = a$, $\log_3 2 = b$ bo'lsa, $\log_6 45$ ni a va b orqali ifodalang. 98-05-29

A) $\frac{b+2}{a+2}$ B) $\frac{2+a}{1+b}$ C) $\frac{a}{1+b}$ D) $\frac{b}{1+a}$ E) $\frac{1+a}{2+b}$

92. Agar $\log_7 2 = a$, $\log_2 10 = b$ bo'lsa, $\log_4 39{,}2$ ni a va b orqali ifodalang. 98-11-44

A) $\frac{1}{a} + \frac{2}{3} - \frac{b}{2}$ B) $\frac{1}{a} + \frac{3}{2} - \frac{b}{2}$ C) $\frac{1}{a} - \frac{3}{2} + \frac{b}{2}$

D) $\frac{1}{a} - \frac{2}{3} + \frac{b}{2}$ E) $\frac{1}{a} - \frac{2}{3} + \frac{b}{3}$

93. $\log_2 3 = a$ va $\log_2 5 = b$ bo'lsa, $\log_{45} 135$ ni a va b orqali ifodalang. 99-07-30

A) $\frac{b+3a}{b+2a}$ B) $\frac{b+2a}{b+3a}$ C) $\frac{b+a}{b+2a}$ D) $\frac{b+2a}{b+5a}$

E) $\frac{b+3a}{b+a}$

94. Agar $\log_{14} 7 = a$ va $\log_{14} 5 = b$ bo'lsa, $\log_{35} 28$ ni a va b orqali ifodalang. 00-03-35

A) $\frac{2-a}{a+b}$ B) $\frac{a-2}{a+b}$ C) $\frac{a+2}{a+b}$ D) $\frac{a+b}{a-2}$

E) $\frac{a+b}{2-a}$

95. Agar $\log_7 2 = a$, $\log_2 10 = b$ bo'lsa, $\log_4 78{,}4$ ni a va b orqali ifodalang. 00-10-39

A) $2 - \frac{1}{a} - \frac{b}{2}$ B) $2 + \frac{1}{a} + \frac{b}{2}$ C) $2 - \frac{1}{a} + \frac{b}{2}$

D) $2 + \frac{1}{a} - \frac{b}{2}$ E) $-2 + \frac{1}{a} + \frac{b}{2}$

96. Agar $lg\,2 = a$ va $lg\,7 = b$ bo'lsa, $log_5 9{,}8$ ni a va b orqali ifodalang. 01-07-24

A) $\frac{a+b}{1-a}$ B) $\frac{a+2b-1}{1-a}$ C) $\frac{a-2b+1}{1-a}$

D) $\frac{a+2b}{a-1}$ E) $\frac{2-b}{a-1}$

97. Agar $\log_3 4 = a$ va $\log_5 4 = b$ bo'lsa, $\log_4 45$ ni a va b orqali ifodalang.

A) $\frac{a+3b}{ab}$ B) $\frac{2a+b}{a+b}$ C) $\frac{a-2b}{ab}$
D) $\frac{a+2b}{a+b}$ E) $\frac{a+2b}{ab}$

01-11-27

98. Agar $\log_{\frac{b}{a}}\left(\frac{a^2}{b}\right) = -\frac{1}{2}$ bo'lsa, $\log_{a^2 b}(ab)$ ni hisoblang.

A) $-\frac{1}{4}$ B) -1 C) 1 D) 0,6 E) 0,8

02-09-38

99. $\lg 2 = a$, $\log_2 7 = b$ bo'lsa, $\lg 56$ ni a va b orqali ifodalang.

A) $3a + ab$ B) $2a + 3b$ C) $3a + 2b$
D) $\frac{2a+5b}{3}$ E) $\frac{3a^2+ab}{b}$

02-10-27

100. Agar $\lg 5 = a$ va $\lg 3 = b$ bo'lsa, $\log_{30} 8$ ni a va b orqali ifodalang.

A) $\frac{a}{2a+3b}$ B) $\frac{b-3}{1-2a}$ C) $\frac{3a-3}{b+2}$
D) $\frac{3(1-a)}{1+b}$ E) $\frac{a-1}{3a+b}$

03-07-67

101. Agar $a = \log_5 4$ va $b = \log_5 3$ bo'lsa, $\log_{25} 12$ ni a va b orqali ifodalang.

A) $\frac{a+b}{2}$ B) $\frac{a-b}{4}$ C) $\frac{ab}{2}$ D) $\frac{a^2+b}{4}$ E) $\frac{a^2+b^2}{5}$

03-08-43

102. Agar $\log_3 7 = a$, $\log_7 5 = b$, va $\log_5 4 = c$ bo'lsa, $\log_3 12$ ni toping.

A) $abc+1$ B) $\frac{ab}{c}+1$ C) $a+b+c$ D) $\frac{ac}{b}+2$
E) $abc+2$

03-11-12

103. $5^a = 3$ va $75^b = 81$ bo'lsa, a ni b orqali ifodalang.

A) $\frac{2b}{4-b}$ B) $\frac{b}{4+b}$ C) $\frac{3b}{b-4}$ D) $\frac{2b}{4+b}$ E) $\frac{b}{4-b}$

03-05-06

104. Agar $2^a = 5$ va $20^b = 125$ bo'lsa, b ni a orqali ifodalang.

A) $\frac{3-a}{2a}$ B) $\frac{a}{3-a}$ C) $\frac{2a}{3-a}$ D) $\frac{3a}{2+a}$ E) $\frac{3-a}{a}$

03-06-12

105. Agar $2^a = 5$ va $20^b = 125$ bo'lsa, a ni b orqali ifodalang.

A) $\frac{3-b}{2b}$ B) $\frac{b}{3-b}$ C) $\frac{2b}{3-b}$ D) $\frac{3b}{2+b}$ E) $\frac{3-b}{b}$

03-07-17

106. a, b, c lar musbat sonlar va $a^4 b^{\frac{1}{x}} = 16c^2$ bo'lsa $4\log_2 a - \log_{\sqrt{2}} c + \log_4 \sqrt[4]{b}$ ning qiymatini toping.

A) 4 B) 2 C) 8 D) 6 E) 1

03-11-…

107. $\left(\left(\log_b^4 a + \log_a^4 b + 2\right)^{1/2} - 2\right)^{1/2}$ ni soddalashtiring ($b > a > 1$).

A) $\log_a b - \log_b a$ B) $\log_a b + \log_b a$
C) $\log_b a - \log_a b$ D) $\sqrt{\log_a b - \log_b a}$
E) $\sqrt{\log_b a - \log_a b}$.

01-02-29

108. Agar $0 < p < 1$ va $1 < n < m$ bo'lsa, quyidagi ko'paytmalardan qaysi biri musbat?

A) $\log_p m \cdot \log_m 1$ B) $\log_p n \cdot \log_p m$
C) $\log_m p \cdot \log_n m$ D) $\log_p m \cdot \log_m 1$
E) $\log_p n \cdot \log_n m$

99-09-47

109. Agar $x = \log_5 2 + \log_{11} 3$ bo'lsa, quyidagi sonlarning qaysi biri eng katta bo'ladi?

A) x B) x^2 C) x^3 D) $\sqrt{x}$ E) $\sqrt[3]{x}$

03-01-20

110. Agar $p = \frac{1}{\lg\pi} + \frac{1}{\log_5 \pi} + \frac{1}{\log_2 \pi}$ bo'lsa, quyidagi munosabatlarning qaysi biri to'g'ri?

A) $p < 3$ B) $p = 3$ C) $p < 4$ D) $p = 4$ E) $p > 4$

03-02-25

111. $\left(\frac{4}{9}\right)^x \left(\frac{27}{8}\right)^{x-1} = \frac{\lg 4}{\lg 8}$ tenglamani yeching.

A) 3 B) 4 C) 2 D) 1 E) 0

00-03-28

112. $7^{\frac{2x^2-5x-9}{2}} = \left(\sqrt{2}\right)^{3\log_2 7}$ tenglamani yeching.

A) $-1,5$; 1 B) 1,5 C) $-2,5$; 4 D) 2,5 E) $-1,5$; 4

03-11-13

113. $e^x + 7e^{-x} = 8$ tenglamaning ildizlari yig'indisini toping.

A) 8 B) $\ln 7e$ C) $\ln 7$ D) $\ln 8$, E) $\ln 56$

03-12-55

114. $a = \log_{75} 45$ bo'lsa, $\log_5 3$ ni a orqali ifodalang.

A) $\frac{1-2a}{a-2}$ B) $\frac{2a-1}{a-2}$ C) $\frac{a-2}{1-2a}$ D) $\frac{a-2}{2a-1}$ E) $\frac{a+2}{2a-1}$

96-13-27

115. Agar $a > 0$ va $a \neq 1$ bo'lsa, $\log_{\sqrt{a}} \sqrt[3]{a}$ ifodaning qiymatini toping.

A) $\frac{2}{3}$ B) $\frac{3}{2}$ C) 3 D) 6 E) $\frac{1}{3}$

02-03-32

116. $\log_5 \ln e^{625}$ ni hisoblang.

A) $4e$ B) 5 C) 3 D) 4

2006

117. $a = \log_{98} 112$ bo'lsa, $\log_7 2$ ni a orqali ifodalang.

A) $\frac{2a-1}{3-a}$ B) $\frac{4-a}{2a-1}$ C) $\frac{1-2a}{a-4}$ D) $\frac{a-3}{2a-1}$

2006

118. $\log_a 64 = 3$ va $\log_b 243 = 5$ bo'lsa ab ning qiymatini toping

A) 5 B) 12 C) 8 D) 6

2006

2-§. Logarifmik funksiya. Xossalari va grafigi.

1. $y=\log_3(2-x)$ funksiyaning aniqlanish sohasini toping. 06-06-52
A)$(-\infty;2)$ B)$(2;\infty)$ C)$(0;2)$ D)$(0;2]$
E)$\left(0;\frac{1}{3}\right)\cup\left(\frac{1}{3};2\right)$

2. $y=\log_x(3-x)$ funksiyaning aniqlanish sohasini toping. 07-01-63
A)$(-\infty;3)$ B)$(0;\infty)$ C)$(0;1)\cup(1;3)$ D)$(0;3)$
E)$(3;\infty)$

3. $f(x)=\log_x(6-x)$ funksiyaning aniqlanish sohasini toping. 07-06-64
A)$(-\infty;6)$ B)$(1;6)$ C)$(0;1)$ D)$(0;1)\cup(1;6)$ E)$[1;6)$

4. $y=\log_{x-1}\left(x-\frac{1}{4}\right)$ funksiyaning aniqlanish sohasini toping. 07-09-53
A)$\left(\frac{1}{4};\infty\right)$ B)$(1;2)\cup(2;\infty)$ C)$(-0,25;2)\cup(2;\infty)$
D)$[-0,25;2)\cup[2;\infty)$ E)$[-0,25;2)\cup(2;4]$

5. $y=\log_{x^3}(6-x)$ funksiyaning aniqlanish sohasini toping. 07-12-51
A)$D(y)=(0;6)$ B)$D(y)=[1;6]$ C)$D(y)=(0;6]$
D)$D(y)=(1;6)$ E)$D(y)=(0;1)\cup(1;6)$

6. $y=\log_{x^2}(4-x)$ funksiyaning aniqlanish sohasini toping. 07-02-52
A)$(-\infty;4)$ B)$(-\infty;-1)\cup(-1;0)\cup(0;1)\cup(1;4)$
C)$(-\infty;-1)\cup[-1;1]\cup(1;4)$ D)$(-\infty;1)\cup(4;\infty)$
E)$(4;\infty)$

7. $f(x)=\log_5(81^{-x}-3^{x^2+3})$ funksiyaning aniqlanish sohasini toping. 00-09-44
A)$(-\infty;-3)\cup(-2;\infty)$ B)$(-\infty;1)\cup(3;\infty)$ C)$(1;3)$
D)$(-3;-1)$ E)$(0;\infty)$

8 $y=-\log_5 x$ funksiyaning grafigi koordinatalar tekisligining qaysi choraklarida yotadi? 08-07-42
A)I, III B)III, IV C)II, III D)I, IV E)I, II

9 $y=\log_3 x$ funksiyaning grafigi koordinata tekisligining qaysi choraklarida yotadi? 09-12-43
A)I, IV B)I, II C)II, III D)III, IV E)II, IV

10 $y=\log_3(x(x-3))-\log_3 x$ funksiyaning aniqlanish sohasini toping. 00-06-39
A)$(3;\infty)$ B)$(-\infty;3)$ C)$(3;\infty)$ D)$(-\infty;3]$ E)$(3;-3)$

11. $y=\log_{\sqrt{10}}(6+x-x^2)$ funksiyaning aniqlanish sohasidagi butun sonlarning yig'indisini toping. 01-03-31
A)0 B)3 C)2 D)5 E)4

12. $y=\log_\pi\frac{x^2-13x-30}{25-9x^2}$ funksiyaning aniqlanish sohasiga nechta natural son tegishli? 11-09-46
A)13 B)15 C)Ø D)8 E)3

13. $f(x)=\log_2(64^{-x}-8^{1-x})$ fuknsiyaning aniqlanish sohasini toping. 99-05-39
A)$(-\infty;0)$ B)$(-\infty;-1)$ C)$(-\infty;-2)$ D)$(1;\infty)$
E)$(2;\infty)$

14. $y=\frac{\ln(6x-x^2-5)}{5^{2-x}-1}$ funksiyaning aniqlanish sohasini toping. 01-01-29
A)$(-\infty;2)\cup(2;\infty)$ B)$(1;2)\cup(2;5)$ C)$(-\infty;1)\cup(5;\infty)$
D)$(1;5)$ E)$[1;5]$

15. $\lg(x+1)=x-1$ tenglama nechta ildizga ega? 97-07-35
A)1 B)2 C)3 D)ildizi yo'q E)aniqlab bo'lmaydi

16. $\ln(x-1)=x-3$ tenglamaning nechta ildizi bor? 97-10-35
A)1 B)2 C)3 D)ildizi yo'q E)aniqlab bo'lmaydi

17. $2^x+\log_3 x=9$ tenglamaning ildizi nechta? 99-05-22
A)Ø B)1 C)2 D)3 E)4

18. $\log_2(2+x)=\frac{x^2}{2}$ tenglamaning nechta ildizi bor? 00-03-37
A)2 B)1 C)3 D)0 E)4

19. $x^2+8=\log_2(x+1)+6x$ tenglamaning nechta ildizi bor? 01-09-43
A)2 B)3 C)1 D)Ø E)aniqlab bo'lmaydi

20. $2^{x^2}+\log_3 x^3=515$ tenglama nechta ildizga ega? 01-10-32
A)Ø B)1 C)2 D)3 E)4

21. $3^{x^2}+\log_2 x^3=84$ tenglama nechta ildizga ega? 02-06-35
A)Ø B)1 C)2 D)3 E)4

22. Qaysi javobda manfiy son ko'rsatilgan? 02-02-20
A)$\log_{\frac{1}{2}}2$ B)$\log_{\sqrt{2}}\sqrt{3}$ C)$\log_{\frac{1}{7}}\frac{1}{\sqrt{45}}$
D)$\log_2 1{,}2$ E)$\log_3\sqrt{5}$

23. $p=\log_{1,2}\frac{3}{8}$; $q=\log_{0,8}\frac{2}{5}$; $r=\log_{1,4}0{,}3$ va $l=\log_{0,4}\frac{3}{4}$ sonlardan qaysilari musbat? 98-09-32
A)faqat p B)p va q C)q va l D)p va l
E)faqat l

24 $a=\log_2 5$, $b=3\log_{\frac{1}{8}}\frac{1}{23}$, $c=4\log_{\frac{1}{4}}\frac{5}{26}$ sonlarni o'sish tartibbda joylashtiring. 03-05-63
A)$b<a<c$ B)$a<b<c$ C)$b<c<a$
D)$c<b<a$ E)$c<a<b$

25. $\log_p 15<\log_p 10$ va $\log_{5p}8>\log_{5p}6$ tengsizliklar o'rinli bo'ladigan p ning barcha qiymatlarini toping. 05-02-34
A)$0<p<1$ B)$p>\frac{1}{5}$ C)$p>1$
D)$\frac{1}{5}<p<1$ E)$p<1$

26. $\log_x 6 > \log_x 12$ tengsizlikni yeching

A)$(0;\frac{1}{2})$ B)$(\frac{1}{2};1)$ C)$(0;1)$ D)$(0;2)$ E)$(1;2)$

27. $f(x)=\log_3(x^2-6x+36)$ funksiyaning eng kichik qiymatini toping.

A)1 B)9 C)2 D)3 E)aniqlab bo'lmaydi

28. $a=\log_{0,2}8$; $b=\log_4 2$; $c=\log_{0,9}0,6$; $d=\log_3 0,8$ va $l=\log_{0,9}2$ sonlardan qaysilari musbat?

A)a,d va l B)b va c C)a,c va d D) c va d

3-§. Logarifmik tenglamalar.

1. $\lg(x-3)-\lg(x+9)=\lg(x-2)$ tenglamada x ning qabul qilishi mumkin bo'lgan qiymatlar to'plamini ko'rsating.

A)$(2;3)$ B)$(9;\infty)$ C)$(-9;\infty)$ D)$(3;\infty)$ E)$(-\infty;9)$

2. $\lg(x^2+2x-3)=\lg(x-3)$ tenglamani yeching.

A)0 B)–1 C)0; –1 D)Ø E)1

3. $\log_2(54-x^3)=3\log_2 x$ tenglamani yeching.

A)–3 B)2 C)1 D)3 E)$\frac{1}{3}$

4. $\left(\sqrt{3}\right)^{\log_{\sqrt{3}}x-4}=\frac{1}{3}$ tenglamani yeching.

A)125 B)25 C)1 D)5 E)3

5. $\log_{\frac{1}{5}}\log_5\sqrt{5x}=0$ tenglamani yeching.

A)–5 B)1 C)0 D)4 E)5

6. $\log_8\log_4\log_2 x=0$ tenglamani yeching

A)12 B)13 C)16 D)15 E)18

7. $\log_2\log_3\log_4\sqrt{x^3}=0$ tenglamani yeching.

A)4 B)16 C)2 D)8 E)1

8. $\log_{18}\log_2\log_2(-\frac{1}{x})=0$ tenglamani yeching

A)$-\frac{1}{16}$ B)$-\frac{1}{8}$ C)$\frac{1}{8}$ D)$-\frac{1}{4}$ E)$\frac{1}{16}$

9. $lg(3+2lg(1+x))=0$ tenglamani yeching.

A)0 B)1 C)–15 D)–0,9 E)–0,5

10. $log_2 x-1=1$ tenglamani yeching

A)3 B)2 C)–1 D)2; –1 E)3; –1

11. $lg(169+x^3)-3lg(x+1)=0$ tenglamani yeching.

A)7 B)6 C)8 D)4 E)9

12. $\lg(5x-2)=\lg(2-5x)$ tenglamaning aniqlanish sohasini toping

A)$(0,4;\infty)$ B)Ø C)$(-\infty;0,4)$ D)$\{2,5\}$ E)$\{0,4\}$

13. $0,2\log_x\frac{1}{32}=-0,5$ tenglamani yeching.

A)$\frac{1}{2}$ B)$\frac{1}{4}$ C)2 D)4 E)$\frac{1}{8}$

14. $\lg(x+11)-\frac{1}{2}\lg(2x+7)=2-\lg 25$ tenglama ildizlarining yig'indisini toping

A)7 B)8 C)9 D)10 E)11

15. $\log_x(5x-4)=2$ tenglamaning ildizlari yig'indisini toping.

A)5 B)4 C)3 D)2 E)4,5

16. Agar $\log_a 8=3$ va $\log_b 243=5$ bo'lsa, ab ning qiymatini toping.

A)4 B)5 C)6 D)8 E)7

17. Agar m $\log_{5+2x}(5x^2+19x+19)=2$ tenglama ildizlarining soni, x_0 esa shu tenglamaning musbat ildizi bo'lsa, $\frac{2m+4}{x_0}$ ning qiymatin toping.

A)1 B)2 C)$\frac{4}{3}$ D)$\frac{6}{5}$ E)$\frac{8}{3}$

18. $\frac{1}{2^{\log_4 x}}=4$ tenglamaning ildizi 16 dan necha marta kam?

A)164 B)172 C)312 D)180 E)256

19. $3^{2\log_3 x}=16$ tenglamaning ildizlarini toping.

A)3 B)–4 C)4 D)±4 E)±3

20. $4^{\log_4(x-5)}=19$ tenglamaning ildizi 20 dan qancha katta?

A)6 B)2 C)4 D)3 E)5

21. $4^{2\log_4 x}=25$ tenglamani yeching.

A)5 B)±5 C)–5 D)10 E)±10

22. $x^{\lg 25}+25^{\lg x}=10$ tenglamani yeching.

A)10 B)1 C)$\sqrt{10}$ D)5 E)100

23. $x^{\lg 9}+9^{\lg x}=6$ tenglamani yeching.

A)1 B)10 C)$\sqrt{10}$ D)2

E)to'g'ri javob keltirilmagan.

24 $2^{\log_2(x^3+4x+1)}=8x+1$ tenglamani yeching.

A)0; –2 B)0; –2;2 C)0;2 D)–2;2 E)0;1;2

25 $\log_5 x=2\log_5 3+4\log_{25}7$ bo'lsa, x ni aniqlang.

A)441 B)125 C)256 D)400 E)421

26 $\log_3(3^x-8)=2-x$ tenglamani yeching.

A)2 va 3 B)3 C)2 D)2 va –1 E)4

27 $\log_2(9^{x-1}+7)=2\log_2(3^{x-1}+1)$ tenglamani yeching.

A)2 B)1 C)3 D)4 E)0

28 $\log_3(3^{2x}-26\cdot 3^x)=x$ tenglamani yeching

A)9 B)6 C)4 D)3 E)2

29 $log_3\left(4\cdot 3^x-1\right)=2x+1$ tenglama ildizlari ayirmasining moduli nechaga teng?

A)1 B)2 C)3 D)0 E)4

30. $\frac{1}{2x}\lg 3 = \lg(3^{\frac{1}{x}} - 6)$ tenglamani yeching. 02-03-37

A)0,5 B)1 C)1,5 D)2 E)$\frac{3}{4}$

31. $\log_2(2^{2x} + 16^x) = 2\log_4 12$ tenglamani yeching. 02-10-69

A)$\log_4 3$ B)$\log_2 3$ C)2 D)$\log_4 6$ E)0

32. $\log_3(3^{2x} - 26\cdot 3^x) = x$ tenglamani yeching. 02-12-49

A)9 B)6 C)4 D)3 E)2

33. $\log_{\sqrt{5}}(4^x - 6) - \log_{\sqrt{5}}(2^x - 2) = 2$ tenglamani yeching. 03-07-21

A)$\frac{3}{2}$ B)$\frac{5}{4}$ C)2 D)2,5 E)3

34. $\lg(2^x + x + 4) = x - x\lg 5$ tenglamani yeching. 03-08-47

A)–4 B)–3 C)–2 D)1 E)2

35. $\lg^2 x - \lg x - 2 = 0$ tenglamaning ildizlari ko'paytmasini toping. 96-01-35

A)1 B)–2 C)10 D)100 E)0,1

36. $\log_3^2 x - 4\log_3 x + 3 = 0$ tenglamaning ildizlari ko'paytmasini toping. 96-09-86

A)4 B)81 C)24 D)$9\frac{1}{3}$ E)30

37. $\log_2^2 x - 5\log_2 x + 6 = 0$ tenglamaning ildizlarini ko'paytmasini toping. 96-10-38

A)5 B)6 C)32 D)$\frac{3}{2}$ E)$\frac{1}{2}$

38. $\log_3^2 x - 3\log_3 x + 2 = 0$ tenglamaning ildizlari yig'indisini toping. 98-03-33

A)6 B)3 C)12 D)15 E)18

39. $\log_2^2 x - 4\log_2 x - 1 = 0$ tenglama ildizlarining ko'paytmasini toping. 98-06-24

A)8 B)4 C)16 D)$\frac{1}{8}$ E)$\frac{1}{16}$

40. $\log_2^2 x - 4\log_2 x + 3 = 0$ tenglamaning ildizlari yig'indisini toping. 98-10-80

A)8 B)10 C)12 D)6 E)14

41. $\log_2^2 x - 2\log_2 x^2 + 3 = 0$ tenglamaning ildizlari yig'indisini toping. 00-01-47

A)4 B) 4 C)–10 D)10 E)8

42. $3^{\log_5^2 x} + x^{\log_3 x} = 162$ tenglamaning ildizlari ko'paytmasini toping. 03-12-76

A)9 B)3 C)1 D)$\frac{1}{3}$ E)$\frac{2}{9}$

43. a ning qanday qiymatida $\lg x + \lg(x-6) = \lg(-a)$ tenglama bitta ildizga ega bo'ladi? 00-07-33

A)9 B)8 C)7 D)6 E)0

44. $\log_2(x+2) + \log_2(x+3) = 1$ tenglamaning ildizi 8dan qanchaga kam? 97-12-54

A)7 B)9 C)10 D)6 E)11

45. $\log_{\sqrt{x}} x - \frac{1}{\log_x 3} = 1$ tenglamani yeching. 01-01-23

A)2 B)3 C)4 D)8 E)9

46. $\log_a x - \log_{a^2} x + \log_{a^4} x = \frac{3}{4}$ tenglamani yeching. 01-05-11

A)a B)a^2 C)a^4 D)2 E)1

47. $2\cdot 3^{\log_7 x} + 3x^{\log_7 3} = 45$ tenglamani yeching. 02-07-09

A)49 B)9 C)7 D)8 E)3

48. Agar $\log_3 x + \log_{\sqrt{x}} x - \log_{\frac{1}{3}} x = 6$ bo'lsa, $\frac{x^2 - x}{4}$ ning qiymatini toping. 02-11-34

A)12 B)15 C)16 D)18 E)20

49. Agar $\lg(x^2 + y^2) = 2$, $\lg 2 + \lg xy = \lg 96$ va $x > 0$ bo'lsa, $x + y$ yig'indining qiymatini toping. 02-12-50

A)12 B)14 C)16 D)18 E)8

50. $\frac{\lg(2x-5)}{\lg(3x^2-39)} = \frac{1}{2}$ tenglamani yeching. 01-01-22

A)4 B)5 C)16 D)4; 16 E)6

51. $\lg(3^{\sqrt{\frac{x^2-4x}{x-3}}} + 1) = 1$ tenglamaning ildizlari yig'indisini toping. 01-03-26

A)10 B)2 C)8 D)25 E)–3

52. $\log_7^2(x^2 + 5x - 13) + \log_{\frac{1}{7}}^2(x^2 - 8x + 13) = 0$ tenglamani yeching. 01-09-44

A)3 B)2 C)5 D)1 E)Ø

53. $\lg\sqrt{x-5} + \lg\sqrt{2x-3} + 1 = \lg 30$ tenglamani yeching. 99-03-20

A)$\frac{1}{2}$ B)6 C)$\frac{1}{2}$; 6 D)$\frac{1}{2}$; 8 E)8

54. $\lg(\frac{1}{2} + x) = \lg\frac{1}{2} - \lg x$ tenglamani yeching. 99-03-38

A)2 B)$\frac{1}{2}$ C)1 D)–1 E) 1 va $\frac{1}{2}$

55. $x^{\log_3(x^2-1)} = 3$ tenglamani yeching 01-05-12

A)2 B)1 C)3 D)4 E)5

56. Agar $x^{\lg 0,2} = 0,2^{\lg x}$ tenglamaning 5 ga karrali bo'lgan eng kichik ildizi x_1 bo'lsa, $6^{\lg(6+x_1)/\lg 6}$ ning qiymatini hisoblang. 01-08-33

A)$\frac{11}{12}$ B)12 C)11 D)$\lg 11$ E)$\lg 12$

57. $\log_{\frac{2}{2}}^2 \frac{x}{2} - \log_2 4x = 3$ tenglamaning ildizlari ko'paytmasini toping. 02-11-33
A)2 B)4 C)6 D)8 E)12

58. $(2x)^{\log_{2x}(x+4,5)^2} = 25$ tenglamani yeching. 00-10-82
A)0 B)0,5 C)–9,5 D)0,8 E)2,4

59. $\log_{\sqrt{2}} x + \frac{2}{\log_x 2} = 4$ tenglamani yeching. 99-06-55
A)2 B)1 C)3 D)4 E)6

60. $\lg(10x^2)\lg x = 1$ tenglamaning kichik ildizini toping. 99-08-32
A)0,01 B)0,1 C)$\sqrt{10}$ D)$\frac{1}{\sqrt{10}}$ E)1

61. $\log_x(9x^2)\cdot\log_3^2 x = 4$ tenglamaning ildizlari yig'indisini toping. 01-09-31
A)$3\frac{1}{9}$ B)$-3\frac{1}{3}$ C)3 D)2 E)$\frac{1}{9}$

62. $\log_x 2 + \log_{4x} 4 = 1$ tenglama ildizlarining ko'paytmasini toping. 02-03-36
A)2 B)4 C)1 D)8 E)6

63. $\log_{0,2}^2 \frac{x}{25} + \log_{0,2}^2 \frac{x}{5} = 1$ tenglamaning ildizlari ko'paytmasini toping 03-03-34
A)$\frac{1}{125}$ B)125 C)25 D)$\frac{1}{25}$ E)5

64. $\log_{4x} \frac{4}{x} + \frac{1}{\log_x^2 4} = 1$ tenglama ildizlarining yig'indisini toping 03-09-21
A)$\frac{65}{16}$ B)$\frac{3}{8}$ C)$\frac{81}{16}$ D)$\frac{5}{8}$ E)$\frac{35}{16}$

65. $\log_x 2 \log_{2x} 2 = \log_{4x} 2$ tenglamaning yechimlari ko'paytmasini toping. 98-11-45
A)1 B)$-\frac{1}{\sqrt{2}}$ C)$-\frac{1}{\sqrt{2}}$ D)$\frac{1}{2}$ E)2

66. $\log_4(x+12)\cdot\log_x 2 = 1$ tenglamani yeching. 99, 03-21
A)4 B)–3 C)2 D)4; 2 E)–3; 4

67. $\log_x 3 \cdot \log_{3x} 3 = \log_{9x} 3$ tenglamaning yechimlari ko'paytmasini toping. 00-10-40
A)$\frac{1}{\sqrt{3}}$ B)$-\frac{1}{3}$ C)1 D)3 E)$-\frac{1}{\sqrt{2}}$

68. $(1+\log_3 x)\cdot\log_x 9 + 2 = 0$ tenglamani yeching. 05-07-18
A)$\frac{1}{3}$ B)9 C)3 D)$\frac{1}{3}$; 9 E)$\frac{1}{3}$; 3

69. $\log_x(3x^2 - 2) = 4$ tenglamaning haqiqiy ildizlari nechta? 01-11-26
A)4 B)3 C)2 D)1 E)ildizi yo'q

70. $2^{3-\frac{x}{2}} = 3$ tenglamani yeching. 03-01-22
A)$\log_2\sqrt{3}$ B)$\log_3\left(2\frac{2}{3}\right)$ C)$\log_2\left(3\frac{3}{5}\right)$
D)$\log_2\left(2\frac{2}{3}\right)$ E)$\log_2\left(7\frac{1}{9}\right)$

71. $2^{x^2}\cdot 3^x = 6$ tenglamaning bitta ildizi 1 ga teng bo'lsa, ikkinchi ildizini toping. 98-06-30
A)$-\log_2 6$ B)$\log_2 3$ C)$\log_3 6$ D)$\sqrt{2}$ E)$\sqrt{3}$

72. $4^x - 5\cdot 2^x + 3 = 0$ tenglama ildizlari yig'indisini toping. 98-11-69
A)5 B) $\log_2 3$ C)3 D)$\log_2 5$ E)8

73. $x^{\lg x - 1} = 100$ tenglamaning ildizlari ko'paytmasini toping. 00-07-39
A)10 B)20 C)100 D)1 E)2

74. $x^{3-\log_3 x} = 9$ tenglama ildizlarining o'rta proporsional qiymatini toping. 01-09-29
A)$3\sqrt{3}$ B)$\sqrt{2}$ C)$2\sqrt{3}$ D)$\sqrt{3}$ E)3

75. $x^{\frac{\lg x}{2}} = \left(\frac{x}{10}\right)^2$ tenglamani yeching. 01-10-29
A)10 B)100 C)0,1 D)0,01 E)1000

76. $x^{2\lg x} = 10x^2$ tenglamaning ildizlari ko'paytmasini toping. 02-06-34
A)1 B)10 C)100 D)0,1 E)1000

77. $x^{\lg x + 5} = 10^{5+\lg x}$ tenglama ildizlarining ko'paytmasini toping. 01-07-73
A)100 B)10 C)1 D)0,1 E)0,01

78. $x^{\log_3 x^2 + \log_3^2 x - 10} = \frac{1}{x^2}$ tenglamani yeching 06-08-06
A)1,9; $\frac{1}{81}$ B)1;9 C)1; $\frac{1}{81}$ D)9; $\frac{1}{81}$ E)4,1; $\frac{1}{81}$

79. $\lg^2 x - \lg^2(10x) = 6 - \lg^2(100x)$ tenglamaning ildizlari ko'paytmasini toping. 98-04-46
A)1 B)10 C)0,1 D)0,01 E)0,001

80. $\frac{(7^{x^2-5x+7}-7)\cdot\sqrt{x^2+x-12}\cdot\lg(2x-7)}{\ln(3x-5)\cdot(\sqrt{2x-1}-\sqrt{8-x})} = 0$
tenglama nechta ildizga ega? 00-03-43
A)0 B)1 C)2 D)3 E)4

81. $3^{\log_3 x + \log_3 x^2 + \log_3 x^3 + \ldots + \log_3 x^8} = 27x^{30}$ tenglamani yeching 03-08-41
A)$\sqrt{3}$ B)$\sqrt{2}$ C)3 D)1 E)2

82. $\log_{\sqrt{5}} x + \log_{\sqrt[4]{5}} x + \log_{\sqrt[6]{5}} x + \ldots + \log_{\sqrt[16]{5}} x = 36$ tenglamani yeching 03-08-42
A)$\sqrt{5}$ B)5 C)2 D)16 E)$\sqrt{3}$

83. x ning qanday qiymatida $log_3(x-1)$, $log_3(x+1)$ va $log_3(2x-1)$ ifodalar ko'rsatilgan tartibda arifmetik progressiyaning dastlabki uchta hadidan iborat bo'ladi? 01-09-36
A)3 B)6 C)4 D)2 E)5

84. $\lg a$, $\lg b$ va 3 sonlari ko'rsatilgan tartibda arifmetik progressiyani tashkil etadi. Agar $a^4 = b^2$ bo'lsa, $a+b$ ning qiymatini toping. 03-02-04
A)1000 B)200 C)101 D)110 E)10,1

85. k ning qanday qiymatida $|\ln(x+15)| = -(x+k)^2$ tenglama yechimga ega bo'ladi? 98-04-22
A)–15 B)14 C)15 D)10 E)$-e$

86. k ning qanday qiymatida $f(x) = |\log_5(k-x)|$ va $g(x) = -|x-7|$ funksiyalarning grafiklari Ox o'qida yotgan nuqtada kesishadi? 98-12-81
A)1 B)4 C)5 D)–1 E)8

87. $|x-13| \cdot \log_2(x-3) = 3(13-x)$ tenglama ildizlarining yig'indisini toping. 96-12-...
A)39 B)130 C)169 D)24 E)78

88. Agar $\log_4 \dfrac{(2-x)^2}{(3-x)^3} = -3\log_4|3-x|$ bo'lsa, $x-27$ ni hisoblang. 03-04-34
A)–25 B)–29 C)–26 D)–24 E)–28

89. $1+\log_x \dfrac{4-x}{10} = (\lg\lg 2-1)\log_x 10$ tenglama nechta ildizga ega? 01-05-10
A)2 B)1 C)3 D)4 E)5

90. $3x\log_3 x + 2 = \log_{27} x^3 + 6x$ tenglamaning katta ildizi kichik ildizidan necha marta katta? 02-02-24
A)27 B)9 C)3 D)81 E)2

91. Agar $\begin{cases} 3^x \cdot 2^y = 972 \\ \log_{\sqrt{3}}(x-y) = 2 \end{cases}$ bo'lsa, xy ning qiymatini toping. 00-02-22
A)14 B)12 C)10 D)8 E)–8

92. Agar $\begin{cases} \log_2(x-y) = 1 \\ 2^x \cdot 3^{y+1} = 72 \end{cases}$ bo'lsa, x va y ning o'rta proporsional qiymatini toping. 02-10-71
A)$\sqrt{3}$ B)2 C)$\sqrt{2}$ D)$2\sqrt{2}$ E)1,5

93. Agar $\begin{cases} x^{\lg y} = 1000, \\ \log_y x = 3 \end{cases}$ bo'lsa, y ning qiymatini toping. 03-04-36
A)10 B)0,01 C)10 yoki 0,1 D)30 E)qiymati yo'q

94. Agar $\begin{cases} \log_9 \dfrac{x^2}{y} = \dfrac{1}{2} \\ \log_3 xy = 3 \end{cases}$ bo'lsa, $x+y$ ning qiymatini toping 03-05-27
A)6 B)10 C)12 D)15 E)1

95. $\log_2(3-x) - \log_{\frac{1}{2}}(1-x) = 3$ tenglamaning ildiziga nechani qo'shsak, u 5 ga teng bo'ladi? 02-08-16
A)6 B)5 C)7 D)3 E)4

4-§. Logarifmik tengsizliklar.

1. $a = \log_{0,2} 8$, $b = \log_3 0{,}8$, $c = \log_{0,9} 2$, $d = \log_4 2$ va $l = \log_{0,9} 0{,}6$ sonlaridan qaysi biri musbat? 06-03-43
A)b va d B)a va d C)c va d D)a, c va d E)l va d

2. $a = \log_{\frac{1}{2}} 5$, $b = \log_{\frac{1}{4}} 3$ va $c = \log_{\frac{1}{2}} 3$ bo'lsa, a, b va c sonlar uchun quyidagi munosabatlarning qaysi biri o'rinli? 96-03-90
A)$a < b < c$ B)$c < a < b$ C)$b < c < a$
D)$b < a < c$ E)$a < c < b$

3. $a = \log_{\frac{1}{3}} 3$, $b = \log_{\frac{1}{4}} 3$ va $c = \log_{\frac{1}{3}} 4$ bo'lsa, a, b va c sonlar uchun quyidagi munosabatlarning qaysi biri o'rinli? 96-09-25
A)$c < a < b$ B)$c < b < a$ C)$a < b < c$
D)$b < a < c$ E)$b < c < a$

4. $a = \log_{\frac{1}{6}} 4$, $b = \log_{\frac{1}{5}} 6$ va $c = \log_{\frac{1}{5}} 4$ bo'lsa, a, b va c sonlar uchun quyidagi munosabatlarning qaysi biri o'rinli? 96-12-99
A)$c < b < a$ B)$b < c < a$ C)$c < a < b$
D)$a < b < c$ E)$a < c < b$

5. $a = \log_{\frac{1}{5}} 4$, $b = \log_{\frac{1}{5}} 6$ va $c = \log_{\frac{1}{6}} 4$ bo'lsa, a, b va c sonlari uchun quyidagi munosabatlarning qaysi biri o'rinli? 96-13-31
A)$b < c < a$ B)$c < a < b$ C)$a < c < b$
D)$a < b < c$ E)$b < a < c$

6. Quyida keltirilgan tengsizliklardan qaysi biri to'g'ri? 99-02-30
1) $\log_{\frac{1}{2}} \dfrac{b^4+b^2}{b^2} > 0$ 2) $\log_3 8 + \log_3 2 > 4$
3) $\log_4 a^2 < \dfrac{\log_2 a^2}{2}$ 4) $\log_5 10 - \log_5 2 > 1$
A)1 B)2 C)3 D)4 E)barchasi noto'g'ri

7. $\log_5(5-2x) \le 1$ tengsizlikni yeching. 97-01-56
A)$(-\infty;2,5)$ B)$(0;2,5)$ C)$(-\infty;2,5]$ D)$[0;2,5)$ E)$[0,2,5]$

8. x ning qanday qiymatlarida $y = 2 - \lg x$ funksiya manfiy bo'ladi? 97-04-16
A)$x > 100$ B)$x > 10$ C)$x \le 100$ D)$x < 10$
E)$x \ge 100$

9. $\log_5(3-x) - \log_5 12 < 0$ tengsizlikni qanoatlantiradigan butun sonlar nechta? 98-03-32
A)cheksiz ko'p B)5 C)10 D)11 E)13

10. $\log_2(4-x)-\log_2 7<0$ tengsizlikni qanoatlantiradigan butun sonlar nechta?
A)6 B)5 C)8 D)7 E)4 98-10-79

11. $\log_{\frac{1}{2}}(2x-1)<3$ tengsizlikni eng katta butun yechimini toping.
A)2 B)5 C)1 D)4 E)3 99-06-99

12. $\log_4(x+1)\le\log_4(5-x)$ tengsizlikni yeching.
A)(−1;5) B)[2;∞) C)(−1;2)∪(2;5) D)(−∞;2] E)(−1;2] 00-03-40

13. x ning $\log_6\left(\frac{x}{3}+7\right)>0$ tengsizlikni qanoatlantiruvchi eng kichik butun qiymatini aniqlang.
A)−16 B)−18 C)−15 D)−17 E)−14 01-03-24

14. $\log_{\frac{1}{3}}(5-2x)>-2$ tengsizlikni yeching.
A)(−2;−1) B)(−2; 2,5) C)(0; 2,5) D)(0;2) E)(0;1) 01-04-23

15. $\log_{\frac{1}{2}}\left(2^x-128\right)\ge-7$ tengsizlikning butun sonlardan iborat yechimini toping.
A)5 B)6 C)9 D)8 E)7 01-06-38

16. $\sqrt{4x^2-5x-9}<ln\frac{1}{2}$ tengsizlikni yeching.
A)(−5; 4) B)(2;3) C)(−5;2) D)(−1;3) E)Ø 01-09-45

17. $-\lg x<1$ tengsizlikni qanoatlantiruvchi eng kichik butun sonni toping.
A)−2 B)−1 C)10 D)1 E)2 02-04-42

18. $\log_{16}(3x+1)>1/2$ tengsizlikning eng kichik butun yechimini toping.
A)−2 B)−1 C)0 D)1 E)2 02-04-43

19. $\log_{\frac{1}{3}}(2x-3)>1$ tengsizlikni yeching.
A) $1\frac{1}{2}<x<1\frac{2}{3}$ B) $x>1\frac{1}{2}$ C) $x>1\frac{2}{3}$ D) $x<1\frac{1}{2}$
E) $x<2\frac{2}{3}$ 03-06-60

20. $\log_{\frac{1}{\sqrt{3}}}(x-5)+2\log_{\sqrt{3}}(x-5)<4$ tengsizlikni yeching.
A)(6;15) B)(5;14) C)(5;81) D)(10;20) E)(6,5;10) 97-01-24

21. $\log_2(3-2x)-\log_{\frac{1}{8}}(3-2x)>\frac{4}{3}$ tengsizlikni yeching.
A)(−∞;0,5) B)(−∞;1,5) C)(−4;−1) D)(0;1) E)(−∞;0) 97-06-24

22. $\log_{\frac{1}{3}}(x+2)-\log_9(x+2)>-\frac{3}{2}$ tengsizlikni yeching.
A)(0;1) B)(1;∞) C)(2;3) D)(−2;1) E)(−2;5) 97-11-24

23. $9^{\log_3(x-3)}<1$ tengsizlikning eng kichik butun yechimini toping.
A)4 B)6 C)5 D)3 E)7 98-09-25

24. $\left(\frac{1}{2}\right)^{\log_{0,5}x(x-4)}>0$ tengsizlikning eng kichik butun musbat yechimini toping.
A)4 B)6 C)5 D)5,5 E) 4,5 97-12-53

25. $\log_2 x\le 3$ tengsizlikning yechimlaridan iborat bo'lgan tub sonlarning yig'indisini toping.
A)26 B)27 C)17 D)18 E)15 01-07-27

26. $12^{\log_{12}(x+3)}>2x-5$ tengsizlikning eng kichik butun yechimini toping.
A)−1 B)−2 C)−3 D)2 E)−2,5 01-11-28

27. $\log_{0,5}(2x+1)<\log_2(2-3x)$ tengsizlikni yeching.
A) $(-\frac{1}{3};\frac{1}{2})$ B) $(-1;-\frac{1}{3})$ C) $\left(-\infty;-\frac{1}{3}\right)$
D) $(\frac{1}{2};1)$ E) $(\frac{1}{2};\infty)$ 02-02-26

28. $\log_{\frac{1}{3}}(x-1)-2\log_{\frac{1}{9}}(2x-3)<0$ tengsizlikni yeching.
A) $\left(\frac{3}{2};2\right)$ B)$(-\infty;2)$ C)$(2;\infty)$ D) $\left(\frac{3}{2};\infty\right)$
E) $\left(0;\frac{3}{2}\right)\cup(2;\infty)$ 01-07-28

29. $\log_{\frac{\pi}{8}}\frac{2x+3}{3x-2}>\log_{\frac{\pi}{8}}2$ tengsizlikning eng kichik butun musbat yechimini aniqlang.
A)2 B)1 C)3 D)4 E)6 02-03-40

30. $\log_{\frac{1}{\sqrt{2}}}\frac{4x-1}{4x+8}<0$ tengsizlikni yeching.
A) $(\frac{1}{4};\infty)$ B)$(2;\infty)$ C)$(-2;\infty)$ D) $(-2;\frac{1}{4})$ E)$(-\infty;-2)$ 96-07-33

31. $\log_{\sqrt{3}}\frac{3x}{3x-1,5}>0$ tengsizlikni yeching.
A)(0,5;∞) B)(0;0,5) C)(−∞;0) D)(0;∞) E)(0;∞) 97-03-33

32. $\log_{\frac{2}{\sqrt{5}}}\frac{5x}{5x-1}<0$ tengsizlikni yeching.
A) $(\frac{1}{5};0)$ B)$(0,2;\infty)$ C)$(-\infty;0)$ D) $(-\infty;\frac{1}{5})$
E) $(0;\frac{1}{5})$ 97-07-33

33. $\log_{\frac{\sqrt{5}}{2}}\frac{2x-1}{2x+9}>0$ tengsizlikni yeching.
A) $(\frac{1}{2};\infty)$ B)$(-9;\frac{1}{2})$ C)$(-\infty;-4,5)$ D)$(-4,5;0,5)$
E)Ø 97-10-33

34. $\log_{0,3}(2x^2+4)\ge\log_{0,3}(x^2+20)$ tengsizlikning yechimi bo'lgan kesma o'rtasining koordinatasini toping.
A)−2 B) 1 C)2 D)1 E)0 98-09-35

35. $\log_{3x^2+5}(9x^4+27x^2+28)>2$ tengsizlikning butun yechimini toping. 99-02-33
A)1 B)2 C)–1 D)0 E)3

36. $\log_3\left(\frac{4x-9}{2x+5}+1,5\right)<1$ tengsizlikning yechimlari orasida nechta butun son bor? 98-04-30
A)16 B)15 C)14 D)10 E)8

37. $4^{\log_2 x}+x^2<32$ tengsizlikning barcha butun yechimlari yig'indisini toping. 99-10-38
A)10 B)8 C)9 D)7 E)6

38. $2^{\log_2(x-3)}+(x-3)^2<6$ tengsizlikning eng kichik yechimi 15 dan qancha kam? 00-07-34
A)10 B)9 C)11 D)8 E)14

39. $0,5^{\log_3\left(x^2+6x-7\right)}\geq\frac{1}{4}$ tengsizlikning eng katta butun yechimini toping. 01-07-35
A)1 B)2 C)4 D)1,5 E)2,5

40. $\frac{3\log_2(3-2x)}{\log_2 0,1}<0$ tengsizlikni yeching. 01-09-03
A)$(-\infty;1)$ B)$(-\infty;1]$ C)$(1;\infty)$ D)$(-1;2)$ E)$[1;2]$

41. $10^{\lg(x-2)-2}<4$ tengsizlikning eng katta butun yechimini toping. 03-04-35
A)400 B)401 C)398 D)402 E)404

42. $\log_3(x-2)^2\leq 4$ tengsizlik nechta butun sonda o'rinli bo'ladi? 03-12-24
A)9 B)10 C)19 D)18 E)cheksiz ko'p

43. $e^{\ln(3x^2-27)}\leq 21$ tengsizlik nechta butun sonda o'rinli bo'ladi? 03-12-57
A)8 B)9 C)6 D)4 E)2

44. $\log_{0,2}(x^4+2x^2+1)>\log_{0,2}(6x^2+1)$ tengsizlikning barcha manfiy yechimlari to'plamini ko'rsating. 98-02-37
A)(–2;2) B)(–2;0) C)$(-\infty;-2)\cup(0;2)$ D)$(-\infty;-2)$ E)(0;2)

45. $\log_{0,2}\log_4(x^2-5)<0$ tengsizlikning yechimini ko'rsating. 98-06-25
A)(–3;3) B)$(-\infty;-3)\cup(3;\infty)$ C)$(3;\infty)$ D)$(-3;-\sqrt{6})\cup(\sqrt{6};3)$ E)$(-\infty;-\sqrt{5})\cup(\sqrt{5};\infty)$

46. $\log_2\log_{\frac{1}{3}}\log_5 x>0$ tengsizlikni yeching. 99-03-17
A)$(0;\infty)$ B)$(-\infty;\sqrt[3]{5})$ C)$(-\infty;0)\cup(\sqrt[3]{5};\infty)$ D)$(0;\sqrt[3]{5})$ E)$(1;\sqrt[3]{5})$

47. Nechta butun son $\frac{\log_5(5-x^2)}{\log_2(x^4+x^2+1)}>0$ tengizlikni qanoatlantiradi? 02-06-37
A)Ø B)1)2 D)3 E)4

48. $\left(\frac{1}{2}\right)^{\log_{0,2}\log_2\frac{9x+6}{9x^2+2}}>1$ tenglamani yeching. 03-03-35
A)$\left(0;\frac{2}{3}\right)$ B)$\left(0;\frac{1}{6}\right)\cup\left(\frac{2}{3};\infty\right)$ C)$\left(0;\frac{1}{6}\right)\cup\left(\frac{2}{3};\infty\right)$
D)$\left(-\frac{1}{6};\frac{2}{3}\right)$ E)$\left(\frac{2}{3};\infty\right)$

49. $x^{\log_2 x+4}<32$ tengsizlikni yeching. 98-11-49
A)$(2^{-1};2)$ B)$(2^{-2};2)$ C)$(2^{-3};2)$
D)$(2^{-4};2)$ E)$(2^{-5};2)$

50. $\log_{\frac{1}{2}}^3 x-3\log_{\frac{1}{2}}^2 x\geq 0$ tengsizlikni yeching. 02-01-39
A)$[16;\infty)$ B)$\{1\}\cup[16;\infty)$ C)$[8;\infty)$ D)$\{1\}\cup[9;\infty)$ E)$\{1\}\cup[8;\infty)$

51. $\frac{2\log_3 x}{2+\log_3 x}\leq 1$ tengsizlikning yechimlaridan iborat tub sonlarning yig'indisini toping. 02-11-35
A)5 B)6 C)16 D)12 E)17

52. $\frac{\log_2 x-2}{\log_2 x-4}\leq 0$ tengsizlikning yechimlaridan nechtasi tub sonlardan iborat? 03-09-22
A)2 B)3 C)4 D)5 E)cheksiz ko'p

53. $\log_2 x\leq\frac{2}{\log_2 x-1}$ tengsizlikni yeching. 01-01-24
A)(0;1) B)(0;4] C)(0;2) D)(0;1)U(2;4]
E)$(0;\frac{1}{2}]\cup(2;4]$

54. $2\log_8(x-2)-\log_8(x-3)>\frac{2}{3}$ tengsizlikni yeching. 02-05-26
A)$(-\infty;4)$ B)$\{2\}\cup(4;+\infty)$ C)$(-\infty;4)\cup(4;\infty)$
D)$(3;\infty)$ E)$(3;4)\cup(4;\infty)$

55. $\frac{\log_3(1-2x)}{\log_{0,2}\left(x^2+2x+2\right)}<0$ tengsizlikni yeching. 01-10-31
A)$\left(\frac{1}{2};1\right)$ B)$\left(-\infty;\frac{1}{2}\right)$ C)$(-\infty;0)$
D)$(-\infty;-1)\cup(-1;0)$ E)$(-\infty;-1)\cup\left(-1;\frac{1}{2}\right)$

56. $\frac{x-5}{\log_x^2 3}<0$ tengsizlikning butun yechimlari yig'indisini toping. 01-11-32
A)7 B)8 C)9 D)10 E)6

57. $\left(x^2-6x+5\right)\sqrt{\log_3(x-2)}\leq 0$ tengsizlikni yeching. 01-10-30
A)[1;5] B)[1;3] C)[1;4] D)[2;5] E)[3;5]

58. $(x^2-8x+7)\cdot\sqrt{\log_5(x^2-3)}\leq 0$ tengsizlikni yeching. 02-06-38
A)$[-2;1]\cup[2;7]$ B)$[2;7]\cup\{-2\}$ C)[1;7] D)[3;7]
E)[1;5]

59. $(2-\log_2 x)\sqrt{x^2-1} \ge 0$ tengsizlikni yeching. 02-10-72
A)[1,4] B)(0;4] C)$(-\infty;-1]\cup[1;\infty)$ D)$[1;\infty)$ E)$(0;\infty)$

60. $\sqrt{5-x}\left(\log_{\frac{1}{3}}(2x-4)+\frac{1}{\log_x 3}\right)\ge 0$ tengsizlikning butun sonlardan iborat nechta yechimi bor? 02-11-36
A)Ø B)1 C)2 D)3 E)4

61. Nechta butun son $3^{\sqrt{5-x}} \le (x-4)\ln(x-4)$ tengsizlikni qanoatlantiradi? 03-01-12
A)Ø B)1 C)2 D)3 E)4

62. $|\log_3 x| - \log_3 x - 3 < 0$ tengsizlikni yeching. 01-01-25
A)(0;1) B)[1;∞) C)(1;∞) D)$[\frac{1}{3\sqrt{3}};\infty)$ E)$(\frac{1}{3\sqrt{3}};\infty)$

63. $|x-8|(\log_5(x^2-3x-4)+\frac{2}{\log_3 0{,}2})\le 0$ tengsizlikning yechimlaridan nechtasi butun sonlardan iborat? 03-09-23
A)Ø B)1 C)2 D)3 E)5

64. $\log_x 3 < 2$ tengsizlikni yeching. 03-01-29
A)$(\sqrt{3};\infty)$ B)(3;∞) C)(0;1)∪$(\sqrt{3};\infty)$ D)(0;1) E)(0;1)∪(3;∞)

65. Agar $\log_x(4x-3)\ge 2$ bo'lsa, x ning natural sonlar to'plamiga tegishli ildizlari yig'indisini toping. 03-08-51
A)5 B)6 C)7 D)4 E)3

66. $\begin{cases}\log_x 3 > \log_x 7,\\ \log_{\frac{1}{2}}\left(x-\frac{1}{3}\right)\le 1\end{cases}$ tengsizliklar sistemasini yeching. 01-02-75
A)(0;1) B)$[\frac{1}{6};1)$ C)$(1;\frac{5}{3}]$ D)$[\frac{5}{6};1)$ E)(1;2]

67. Nechta butun son $\begin{cases}\log_2 x^2 \ge 2\\ \log_5 x^2 \le 2\end{cases}$ tegsizliklar sistemasini qanoatlantiradi? 01-06-39
A)6 B)7 C)9 D)8 E)5

68. $\lg(x-2) < 2-\lg(27-x)$ tengsizlikning yechimlaridan nechtasi butun sondan iborat? 02-09-35
A)9 B)8 C)7 D)6 E)4

69. $\log_{\frac{1}{2}}{}^3 x + 1 < \log_8 16$ tengsizlikni yeching. 03-07-71
A)(−∞;15) B)(−1;∞) C)(3;∞) D)(−1;3) E)(−1;15)

5-§. Aralash savollar.

1. x ning nechta natural qiymatida $\frac{\sqrt{6-x}}{\log_{\frac{1}{3}}(x-3)}\ge 0$ tengsizlik o'rinli bo'ladi? 98-04-39
A)bunday qiymatlar yo'q B)1 C)2 D)3 E)4

2. k ning qanday qiymatlarida $(2x-k)\cdot\log_2 x = 0$ tenglama bitta ildizga ega? 03-11-28
A)$0<k<1$ B)$k>2$ C)$k=1$ D)$1<k<2$ E)$k\ge 0$, $k=2$

3. $\log_{x^2}(x+2) \le 1$ tengsizlikni yeching. 09-04-41
A)$(-\infty;-1]\cup[2;\infty)$ B)$(-\infty;-1)\cup[2;\infty)$
C)$(-2;-1)\cup(-1;0)\cup(0;1)\cup[2;\infty)$
D)$(-1;2]$ E)$(-\infty;-1)\cup(-1;\infty)$

4. $\log_{x^2}(3-2x) > 1$ tengsizlikning butun yechimlari nechta? 01-02-28
A)4 B)3 C)2 D)1 E)0

5. $\log_{0,5}(x+5)^4 > \log_{0,5}(3x-1)^4$ tengsizlikni yeching. 99-05-14
A)$(3;+\infty)$ B)$(-\infty;1)$ C)$(-\infty;1)\cup(3;+\infty)$
D)$(-\infty;-1)\cup(3;+\infty)$
E)$(-\infty;-5)\cup(-5;-1)\cup(3;+\infty)$

6. $\log_{\frac{1}{5}}(x+17)^8 \le \log_{\frac{1}{5}}(x+13)^8$ tengsizlikni yeching. 00-09-22
A)$(-15;-13)\cup(-13;\infty)$ B)$[-15;-13)\cup(-13;\infty)$ C)$(-13;\infty)$ D)$(-\infty;-17)\cup(-17;-13)\cup(-13;\infty)$ E)$(-7;\infty)$

7. $x=2{,}25$ $\log_e(3-x^2+2x) < \log_e(x^2-x-2)$ tengsizlikni qanoatlantirishi ma'lum. Shu tengsizlikni yeching. 00-04-42
A)(1,5; 3) B)(2; 3) C)(2; 2,5) D)(1,5; 3,5)
E)(1; 3)∪(3; 5)

8. $y=\log_3(x^2-8x+7)$ funksiya grafigining ikkala koordinatasi ham butun sonlardan iborat bo'lgan nechta nuqtasi bor? 99-05-41
A)Ø B)1 C)2 D)3 E)4

9. $(x+2)^{\log_2(x^2+1)} < (x+2)^{\log_2(2x+9)}$ tengsizlik x ning qanday qiymatlarida o'rinli? 96-03-88
A)$(-4,5;\infty)$ B)$(-2;4)$ C)$(4;\infty)$ D)$(-1;4)$ E)$(-2;-1]$

10. $x^{\log_{0,3}(x^2-5x+4)} < x^{\log_{0,3}(x-1)}$ tengsizlik x ning qanday qiymatlarida o'rinli? 96-09-30
A)Ø B)$(4;\infty)$ C)$(5;\infty)$ D)$(-\infty;1)$ E)$(3;\infty)$

11. $(x-2)^{\log_{\frac{1}{2}}(x^2-5x+5)} < (x-2)^{\log_{\frac{1}{2}}(x-3)}$ tengsizlik x ning qanday qiymatlarida o'rinli? 96-12-88
A)$(-\infty;2)\cup(4;\infty)$ B)$(2;4)$ C)$(\frac{5+\sqrt{5}}{2};4)$
D)$(4;\infty)$ E)$(-\infty;\frac{5-\sqrt{5}}{2})\cup(\frac{5+\sqrt{5}}{2};\infty)$

12. $(x-2)^{\log_2(x^2-5x+5)} < (x-2)^{\log_2(x-3)}$ tengsizlik x ning qanday qiymatlarida o'rinli? 96-13-29
A)$(3;\infty)$ B)$(2;4)$ C)$(\frac{5+\sqrt{5}}{2};4)$
D)$(-\infty;2)\cup(4;\infty)$ E)$(-\infty;\frac{5-\sqrt{5}}{2})\cup(\frac{5+\sqrt{5}}{2};\infty)$

13. $\left(3x^2+7x+13\right)\left(x-\frac{1}{\pi}\right)^2\log_{1-x^2}\left(x^2+\frac{1}{x^2}\right)\ge 0$ tengsizlikni qanoatlantiruvchi musbat sonlar nechta? 98-04-27
A)4 B)2 C)3 D)1 E)bunday sonlar yo'q

14 $(x-2-x^2)(2x+\frac{1}{e})^4 \log_{x^2+2x+2}(1-\frac{x^2}{\pi}) \ge 0$ tengsizlikni qanoatlantiruvchi manfiy soniar nechta?
A)cheksiz ko'p B)1 C)Ø D)2 E)aniqlab bo'lmaydi 98-12-85

15. O'suvchi geometrik progressiyaning tashkil etuvchi uchta musbat sonning yig'indisi 42, bu sonlarning 2 asosga ko'ra logarifmlarining yig'indisi 9 ga teng. Progressiyaning maxrajini toping.
A)4 B)2 C)3 D)7 E)2,4 03-05-28

16. $(x-2)^{\log_1(x^2-5x+5)} < (x-2)^{\log_1(x-3)}$ tengsizlik x ning qanday qiymatlarida o'rinli?
A)(2;4) B)(−∞; 2)U(4; ∞) C)(4; ∞)
D)$(\frac{5+\sqrt{5}}{2};4)$ 2006

Takrorlashga doir turli savollar.

1. Tengsizliklar uchun quyida keltirilgan xossalardan qaysilari noto'g'ri?
1)agar $a>b$ va $b>c$ bo'lsa, u holda $a-c<0$ bo'ladi
2)agar $a>b$ va $c>0$ bo'lsa, u holda $ac-bc>0$ bo'ladi
3)agar $a>b$ va $c<0$ bo'lsa, u holda $ac-bc>0$ bo'ladi
4)agar $a>b$ va $b>c$ bo'lsa, u holda $c-a<c-b$ bo'ladi
5) agar $a>b>0$ va $m>0$ bo'lsa, u holda $\frac{m}{a}-\frac{m}{b}>0$ bo'ladi
A)3;4;5 B)2;4;5 C)1;2;3 D)1;2;4 E)1;3;5 2005

2. Tengsizliklar uchun quyida keltirilgan xossalardan qaysilari to'g'ri?
1)agar $a>b$ bo'lsa, u holda $b-a>0$ bo'ladi
2)agar $a>b$ va $b>c$ bo'lsa, u holda $a-c>0$ bo'ladi
3)agar $a>b$ va $c>0$ bo'lsa, u holda $ac-bc>0$ bo'ladi
4)agar $a>b$ bo'lsa, u holda $c-a<c-b$ bo'ladi
5)agar $a>b$ va $m>0$ bo'lsa, u holda $\frac{m}{a}-\frac{m}{b}>0$ bo'ladi.
A)2;3;4; B)1;2;3 C)2;4;5 D)1;4;5 E)1;3;5 2005

3. Tengsizliklar uchun quyida keltirilgan xossalardan qaysilari to'g'ri?
1)agar $a>b$ va $b>c$ bo'lsa, u holda $a-c>0$ bo'ladi
2)agar $a>b$ va $c<0$ bo'lsa, u holda $ac-bc>0$ bo'ladi
3)agar $a>b$ bo'lsa, u holda $b-c>a-c$ bo'ladi
4)agar $a>b$ bo'lsa, u holda $c-a<c-b$ bo'ladi
5)agar $a>b$ va $m>0$ bo'lsa, u holda $\frac{m}{a}-\frac{m}{b}<0$ bo'ladi
A)1;4;5 B)1;3;4 C)2;4;5 D)2;3;5 E)1;2;3 2005

4. Tengsizliklar uchun quyida keltirilgan xossalardan qaysilari noto'g'ri?
1)agar $a>b$ bo'lsa, u holda $b-a>0$ bo'ladi
2)agar $a>b$ va $b>c$ bo'lsa, u holda $a-c>0$ bo'ladi
3)agar $a>b$ va $c>0$ bo'lsa, u holda $ac-bc<0$ bo'ladi
4)agar $a>b$ bo'lsa, u holda $b-c>a-c$ bo'ladi
5)agar $a>b$ bo'lsa, u holda $c-a<c-b$ bo'ladi.
A) 1;3;5; B)1;3;4 C)1;2;5 D)2;4;5 E)2;3;4 2005

5. $a_1,a_2,...a_n$ $(d\neq 0)$ arifmetik progressiya berilgan. Quyidagi sonlardan qaysilari arifmetik progressiya tashkil etadi?
1) $a_1,a_3,...,a_{2n-1}$
2) $\sqrt{a_2},\sqrt{a_4},\sqrt{a_6},...,\sqrt{a_{2n}}$
3) $a_1+a_2,\ a_2+a_3,\ a_3+a_4,\ ...a_{2n-1}+a_{2n}$
4) $a_1+a_3,\ a_3+a_5,\ a_5+a_7,...,a_{2n-3}+a_{2n-1}$
5) $\sqrt{a_2+a_3},\ \sqrt{a_3+a_4},\ \sqrt{a_4+a_5},...,\sqrt{a_{2n-2}+a_{2n-1}}$
A) 1;3;4; B)1;2;3 C)2;3;5 D)2,4,5 E)1;4;5 2005

6. $a_1,a_2,...a_n$ $(d\neq 0)$ arifmetik progressiya berilgan. Quyidagi sonlardan qaysilari arifmetik progressiya tashkil etadi?
1) $\frac{1}{a_1},\frac{1}{a_3},\frac{1}{a_5},...,\frac{1}{a_{2n-1}}$
2) $a_2,a_4,a_6,...,a_{2n}$
3) $\sqrt{a_1+a_2},\ \sqrt{a_2+a_3},\ \sqrt{a_3+a_4},...,\sqrt{a_{2n-1}+a_{2n}}$
4) $a_1+a_3,\ a_3+a_5,\ a_5+a_7,...,\ a_{2n-3}+a_{2n-1}$
5) $a_2+a_3,\ \ a_3+a_4,\ a_4+a_5,...,\ a_{2n-2}+a_{2n-1}$
A) 1;3;4; B)1;3;5 C)1;2;4 D)2;4;5 E)2;3;5 2005

7. Korsatkichli va logarifmik funksiyalar uchun quyida keltirilgan xossalardan qaysilari noto'g'ri?
1) $y=a^x(a>0,a\neq 1)$ funksiyaning qiymatlar to'plami – barcha musbat haqiqiy sonlar to'plami;
2) $y=a^x(a>0,a\neq 1)$ funksiya $0<a<1$ bo'lganda barcha musbat haqiqiy sonlar to'plamida o'suvchi $a>1$ bo'lganda esa kamayuvchi bo'ladi;
3)logarifmik funksiyaning aniqlanish sohasi barcha musbat sonlar to'plami;
4)logarifmik funksiyaning qiymatlar to'plami – barcha musbat sonlar to'plami;
5)agar $a>1$ bo'lsa, u holda $y=\log_a x$ funksiya $x>1$ da manfiy qiymatlar, $0<x<1$ da musbat qiymatlar qabul qiladi.
A)1;3;4 B)1;2;3 C)2,3;5 D)2;4;5 E)1;4,5 2005

8. Korsatkichli va logarifmik funksiyalar uchun quyida keltirilgan xossalardan qaysilari to'g'ri?

1) $y = a^x (a > 0, a \neq 1)$ funksiyaning qiymatlar to'plami – barcha haqiqiy sonlar to'plami;

2) $y = a^x (a > 0, a \neq 1)$ funksiya $0 < a < 1$ bo'lganda barcha musbat haqiqiy sonlar to'plamida kamayuvchi; $a > 1$ bo'lganda esa o'suvchi bo'ladi;

3)logarifmik funksiyaning qiymatlari to'plami - barcha musbat sonlar to'plami;

4) $y = \log_a x$ logarifmik funksiya $x > 0$ oraliqda, agar $a > 1$ bo'lsa o'suvchi, agar $0 < a < 1$ bo'lsa kamayuvchidir;

5)agar $a > 1$ bo'lsa, u holda $y = \log_a x$ funksiya $x > 1$ da musbat qiymatlar, $0 < x < 1$ da manfiy qiymatlar qabul qiladi

A)1;4,5 B)1;3;4 C)2;4;5 D)2;3;5 E)1;2;3

2005

9. Korsatkichli va logarifmik funksiyalar uchun quyida keltirilgan xossalardan qaysilari to'g'ri?

1) $y = a^x (a > 0, a \neq 1)$ funksiyaning qiymatlar to'plami – barcha haqiqiy sonlar to'plami;

2) $y = a^x (a > 0, a \neq 1)$ funksiya $0 < a < 1$ bo'lganda barcha musbat haqiqiy sonlar to'plamida kamayuvchi, $a > 1$ bo'lganda esa o'suvchi bo'ladi;

3)logarifmik funksiyaning aniqlanish sohasi - barcha musbat sonlar to'plami;

4)logarifmik funksiyaning qiymatlar to'plami – barcha musbat sonlar to'plami;

5) $y = \log_a x$ logarifmik funksiya $x > 0$ oraliqda, agar $a > 1$ bo'lsa o'suvchi, agar $0 < a < 1$ bo'lsa kamayuvchidir.

A)1;2,3 B)1;3;4 C)2;3;5 D)2,4;5 E)1;4;5

2005

10. Korsatkichli va logarifmik funksiyalar uchun quyida keltirilgan xossalardan qaysilari noto'g'ri?

1) $y = a^x (a > 0, a \neq 1)$ funksiyaning qiymatlar to'plami – barcha musbat sonlar to'plami;

2) $y = a^x (a > 0, a \neq 1)$ funksiya $0 < a < 1$ bo'lganda barcha haqiqiy sonlar to'plamida kamayuvchi , $a > 1$ bo'lganda esa o'suvchi bo'ladi;

3)logarifmik funksiyaning aniqlanish sohasi - barcha haqiqiy sonlar to'plami;

4)logarifmik funksiyaning qiymatlar to'plami – barcha musbat sonlar to'plami;

5)agar $a > 1$ bo'lsa, u holda $y = \log_a x$ funksiya $x > 1$ da manfiy qiymatlar, $0 < x < 1$ da musbat qiymatlar qabul qiladi.

A)1;2,4 B)1;3;5 C)1;3;4 D)3,4;5 E)2;3;5

2005

11. Geometrik progressiya uchun quyidagi formulalardan qaysilari noto'g'ri?

1) $b_n = b_1 q^{n-1}$ 2) $b_n^2 = b_{n-1} \cdot b_{n+2}$ 3) $S_n = \dfrac{b_1(1-q^n)}{1-q}$

A)1 B)1;3 C)3 D)2

2006

12. Arifmetik progressiya uchun quyidagi formulalardan qaysilari to'g'ri?

1) $a_1 - 2a_2 + a_3 = 0$; 2) $a_1 = a_3 - a_2$;

3) $n = -\dfrac{a_n - a_1 + d}{d}$

A)1 B)2;3 C)1;2 D)2

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JAVOBLAR

1-BOB. KIRISH.

1-§. Natural va butun sonlar ustida arifmetik amallar.

1. C	4. A	7. C	10. D	13. A	16. B	19. E	22. D	25. D	28. E	31. E
2. B	5. E	8. C	11. D	14. C	17. D	20. B	23. A	26. D	29. A	32. A
3. A	6. E	9. B	12. E	15. E	18. C	21. A	24. E	27. C	30. C	33. A

2-§. Oddiy kasrlar ustida arifmetik amallar.

1. B	9. B	17. B	25. D	33. B	41. B	49. D	57. A	65. E	73. E	81. D
2. D	10. E	18. E	26. A	34. E	42. B	50. E	58. B	66. D	74. A	82. C
3. E	11. A	19. C	27. E	35. D	43. C	51. E	59. D	67. A	75. B	83. A
4. D	12. E	20. C	28. B	36. C	44. D	52. A	60. D	68. C	76. A	
5. A	13. B	21. E	29. B	37. D	45. C	53. A	61. E	69. D	77. D	
6. A	14. A	22. A	30. B	38. E	46. A	54. E	62. E	70. C	78. B	
7. E	15. C	23. C	31. D	39. C	47. A	55. D	63. D	71. E	79. D	
8. B	16. C	24. E	32. B	40. B	48. A	56. C	64. A	72. C	80. C	

3-§. O'nli kasrlar ustida arifmetik amallar. Sonning standart shakli.

1. C	10. A	19. A	28. B	37. B	46. A	55. C	64. D	73. E	82. A
2. D	11. B	20. A	29. A	38. A	47. D	56. A	65. A	74. C	83. A
3. C	12. B	21. C	30. B	39. C	48. C	57. D	66. A	75. C	84. D
4. D	13. A	22. C	31. B	40. A	49. D	58. E	67. A	76. B	85. D
5. B	14. B	23. A	32. C	41. C	50. D	59. A	68. A	77. A	86. D
6. C	15. A	24. E	33. B	42. C	51. D	60. A	69. D	78. E	87. B
7. E	16. C	25. A	34. B	43. B	52. A	61. A	70. A	79. B	88. E
8. E	17. A	26 A	35. D	44. C	53. B	62. A	71. B	80. B	89. E
9. C	18. A	27. A	36. C	45. E	54. C	63. A	72. B	81. B	90. C

4-§. Davriy kasrlar ustida arifmetik amallar.

1. B	5. A	9. D	13. B	17. A	21 B	25. C	29. C	33. E	37. D
2. B	6. D	10. A	14. A	18. A	22. D	26. B	30. D	34. C	
3. C	7. E	11. B	15. E	19. B	23. B	27. A	31. D	35. A	
4. C	8. C	12. C	16. C	20. A	24. D	28. C	32. D	36. A	

2-BOB. SONLAR NAZARIYASI ELEMENTLARI.

1-§. Raqamlar tushunchasi. Tub va murakkab sonlar. O'zaro tub sonlar.

1.C	3.B	5 C	7.C	9.C	11. A	13. D
2.A	4.E	6.B	8.E	10. B	12. D	

2-§. Bo'linish alomatlari.

1. D	5. A	9. B	13. E	17. E	21. E	25. A	29. A	33. D
2. E	6. D	10. D	14. C	18. B	22. A	26. D	30. A	34. E
3. C	7. D	11. E	15. B	19. C	23. D	27. C	31. B	
4. E	8. E	12. C	16. D	20. B	24. A	28. C	32. C	

3-§. Arifmetikaning asosiy teoremasi. EKUB va EKUK. Bo'luvchilar soni va ularning yig'indisi.

1. B	4. A	7. D	10. D	13. A	16. C	19. D	22. C	25. C
2. E	5. C	8. D	11. B	14. D	17. A	20. A	23. D	26. B
3. E	6. C	9. B	12. A	15. A	18. B	21. C	24. C	27. D

4-§. Kasrning davriyligi.

1. B	2. B	3. C	4. C	5. C	6. B	7. E

5-§. Qoldiqli bo'lish.

1. C	3. A	5. B	7. D	9. A	11. E	13. D	15. D	17. A	19. A	21. C	23. D
2. A	4. B	6. D	8. D	10. A	12. E	14. A	16. B	18. A	20. D	22. E	

6-§. Oxirgi raqam.

1. C	3. D	5. A	7. A	9. A	11. D	13. D	15. B	17. E	19. C	21. D
2. B	4. A	6. B	8. A	10. E	12. B	14. D	16. C	18. E	20. A	

3-BOB. SONLI IFODALARNING XOSSALARI.

1-§. Yig'indi va ko'paytmaning xossalari.

1.	A	3.	C	5.	E	7.	B	9.	B	11.	A	13.	A						
2.	C	4.	C	6.	A	8.	A	10.	C	12.	A	14.	A						

2-§. O'rta arifmetik va o'rta geometrik qiymatlar.

1.	E	3.	C	5.	D	7.	C	9.	C	11.	A	13.	B	15.	A	17.	A	19.	D	21.	A	23.	B
2.	C	4.	B	6.	A	8.	B	10.	D	12.	A	14.	B	16.	B	18.	C	20.	A	22.	D		

3-§. Sonning butun qismi. Sonning moduli.

1.	A	3.	B	5.	E	7.	E	9.	B	11.	D	13.	A	15.	E	17.	C	19.	D	21.	B
2.	A	4.	E	6.	B	8.	C	10.	E	12.	D	14.	D	16.	A	18.	A	20.	A	22.	B

4-§. Bo'linuvchanlik.

1.	C	3.	C	5.	B	7.	E	9.	C	11.	A	13.	B	15.	D	17.	D	19.	D
2.	D	4.	A	6.	B	8.	B	10.	B	12.	C	14.	C	16.	B	18.	B		

5-§. O'lchov birliklari va to'plamlar. Raqamlar yig'indisi.

1.	C	3.	E	5.	E	7.	C	9.	D	11.	A	13.	B	15.	A	17.	D		
2.	D	4.	E	6.	A	8.	B	10.	E	12.	E	14.	B	16.	B	18.	B		

4-BOB. CHIZIQLI FUNKSIYA.

1-§. Chiziqli tenglamalar.

1.	C	4.	B	7.	B	10.	C	13.	C	16.	B	19.	C	22.	B	25.	E	28.	C	31.	B
2.	A	5.	C	8.	C	11.	E	14.	B	17.	C	20.	C	23.	E	26.	A	29.	C		
3.	D	6.	A	9.	D	12.	E	15.	B	18.	B	21.	C	24.	E	27.	A	30.	A		

2-§. Proporsiyalar.

1.	C	6.	A	11.	A	16.	C	21.	E	26.	C	31.	A	36.	C	41.	A	46.	A	51.	E
2.	C	7.	C	12.	B	17.	A	22.	C	27.	E	32.	A	37.	D	42.	B	47.	A		
3.	A	8.	A	13.	A	18.	A	23.	D	28.	A	33.	A	38.	C	43.	D	48.	C		
4.	A	9.	E	14.	C	19.	B	24.	C	29.	A	34.	A	39.	A	44.	B	49.	C		
5.	A	10.	A	15.	E	20.	E	25.	C	30.	B	35.	C	40.	D	45.	A	50.	B		

3-§. Chiziqli tenglamalar sistemasi.

1.	C	4.	D	7.	A	10.	C	13.	E	16.	B	19.	A	22.	D	25.	E	28.	D	31.	C	34.	E
2.	B	5.	C	8.	E	11.	B	14.	C	17.	B	20.	D	23.	B	26.	E	29.	A	32.	C	35.	D
3.	B	6.	B	9.	E	12.	E	15.	C	18.	A	21.	E	24.	C	27.	C	30.	E	33.	A	36.	E

4-§. Chiziqli tengsizliklar. Chiziqli tengsizliklar sistemasi.

1.	E	5.	D	9.	A	13.	E	17.	A	21.	C	25.	C	29.	E	33.	D	37.	B		
2.	C	6.	A	10.	D	14.	C	18.	C	22.	A	26.	D	30.	A	34.	D				
3.	B	7.	A	11.	E	15.	B	19.	B	23.	E	27.	C	31.	D	35.	B				
4.	C	8.	C	12.	C	16.	C	20.	D	24.	B	28.	D	32.	C	36.	E				

5-§. Chiziqli funksiya va uning grafigi.

1.	B	3.	D	5.	D	7.	B	9.	E	11.	A	13.	D	15.	A	17.	B		
2.	A	4.	C	6.	D	8.	D	10.	C	12.	A	14.	B	16.	A	18.	C		

6-§. Parametrli misollar.

1.	D	5.	C	9.	C	13.	A	17.	C	21.	C	25.	E	29.	A	33.	A	37.	A	41.	C	45.	C
2.	B	6.	A	10.	A	14.	A	18.	B	22.	A	26.	E	30.	A	34.	D	38.	E	42.	B		
3.	B	7.	B	11.	C	15.	B	19.	D	23.	D	27.	A	31.	C	35.	E	39.	D	43.	B		
4.	B	8.	B	12.	A	16.	B	20.	A	24.	B	28.	C	32.	A	36.	A	40.	C	44.	D		

5-BOB. FOIZLAR. CHIZIQLI TENGLAMALAR VA ULARNING SISTEMALARIGA KELADIGAN MASALALAR.

1-§. Foizlar.

1.	C	4.	A	7.	B	10.	B	13.	C	16.	E	19.	C	22.	A	25.	C	28.	A	31.	C	34.	B
2.	D	5.	A	8.	C	11.	B	14.	E	17.	B	20.	C	23.	B	26.	C	29.	E	32.	E	35.	A
3.	E	6.	A	9.	D	12.	A	15.	B	18.	B	21.	C	24.	E	27.	D	30.	B	33.	C	36.	A

2-§. Murakkab foizlar.

1. B	5. A	9. A	13. C	17. D	21. C	25. B	29. A	33. B	37. A
2. B	6. B	10. C	14. E	18. E	22. E	26. A	30. D	34. C	38. E
3. D	7. C	11. D	15. D	19. C	23. D	27. D	31. A	35. D	39. D
4. C	8. D	12. D	16. D	20. E	24. C	28. D	32. D	36. D	

3-§. Aralashma, qotishma va eritmalarga doir masalalar.

1. B	3. A	5. A	7. B	9. C	11. E	13. C	15. D
2. B	4. A	6. A	8. A	10. A	12. C	14. C	

4-§. Chiziqli tenglamalar va ularning sistemalarga keladigan masalalar.

1. B	8. A	15. B	22. E	29. D	36. C	43. A	50. C	57. A	64. A	71. A	78. C
2. C	9. E	16. D	23. E	30. C	37. B	44. D	51. B	58. C	65. B	72. A	79. B
3. C	10. E	17. A	24. A	31. C	38. B	45. A	52. A	59. D	66. A	73. B	80. A
4. B	11. D	18. B	25. B	32. C	39. A	46. B	53. D	60. B	67. C	74. D	
5. C	12. A	19. A	26. E	33. B	40. C	47. B	54. A	61. A	68. A	75. B	
6. E	13. B	20. A	27. D	34. B	41. C	48. A	55. D	62. B	69. D	76. B	
7. C	14. A	21. B	28. D	35. E	42. D	49. A	56. D	63. D	70. B	77. D	

6-BOB. KO'PHADLAR. QISQA KO'PAYTIRISH FORMULALARI. RATSIONAL IFODALAR.

1-§. Ko'phadlar. Ko'phadning standart shakli.

1. B	5. C	9. C	13. A	17. D	21. B	25. A	29. C	33. C	37. D
2. D	6. E	10. A	14. D	18. B	22. B	26. C	30. A	34. B	
3. D	7. E	11. B	15. A	19. D	23. C	27. A	31. A	35. A	
4. D	8. C	12. C	16. A	20. B	24. B	28. E	32. A	36. C	

2-§. Qisqa ko'paytirish formulalari. Ko'paytuvchilarga ajratish.

1. C	9. D	17. B	25. C	33. A	41. A	49. A	57. A	65. D	73. A	81. E
2. D	10. A	18. B	26. C	34. C	42. B	50. D	58. A	66. C	74. A	82. C
3. C	11. A	19. A	27. E	35. B	43. A	51. D	59. A	67. D	75. B	83. B
4. A	12. A	20. E	28. B	36. A	44. A	52. D	60. C	68. A	76. D	84. D
5. A	13. C	21. A	29. B	37. C	45. B	53. D	61. A	69. B	77. A	85. A
6. C	14. C	22. C	30. E	38. E	46. C	54. D	62. A	70. C	78. B	86. D
7. B	15. D	23. D	31. E	39. C	47. E	55. C	63. D	71. A	79. A	87. B
8. C	16. C	24. C	32. B	40. A	48. C	56. E	64. B	72. D	80. A	

3-§. Ratsional ifodalar. Ratsional ifodalarni soddalashtirish.

1. C	7. E	13. B	19. C	25. A	31. E	37. A	43. E	49. C	55. B	61. E	67. A
2. C	8. D	14. C	20. A	26. D	32. C	38. A	44. D	50. B	56. A	62. A	68. A
3. C	9. D	15. B	21. A	27. E	33. C	39. B	45. B	51. A	57. D	63. A	69. E
4. C	10. D	16. D	22. D	28. E	34. B	40. C	46. B	52. D	58. C	64. B	70. A
5. B	11. E	17. A	23. C	29. D	35. B	41. A	47. D	53. A	59. E	65. B	71. B
6. C	12. E	18. D	24. A	30. E	36. D	42. E	48. E	54. A	60. C	66. A	

7-BOB. IRRATSIONAL SONLAR VA IFODALAR.

1-§. Irratsional sonlar.

1. D	2. A	3. B	4. B	5. C

2-§. Kvadrat ildiz.

1. E	8. D	15. B	22. A	29. A	36. A	43. D	50. A	57. D	64. C
2. A	9. E	16. C	23. C	30. D	37. A	44. E	51. C	58. E	65. D
3. E	10. A	17. B	24. C	31. A	38. B	45. D	52. D	59. D	66. D
4. A	11. A	18. B	25. C	32. A	39. A	46. B	53. A	60. B	67. B
5. C	12. C	19. A	26. A	33. C	40. B	47. E	54. B	61. A	68. E
6. E	13. D	20. A	27. B	34. A	41. C	48. A	55. E	62. D	69. C
7. C	14. C	21. B	28. A	35. D	42. D	49. C	56. A	63. A	70. C

71. B	78. E	85. E	92. A	99. A	106 A	113. B	120. A	127. C	
72. A	79. E	86. C	93. D	100. A	107. C	114. B	121. E	128. C	
73. B	80. C	87. A	94. A	101. C	108. A	115. A	122. A	129. D	
74. A	81. D	88. E	95. E	102. B	109. E	116. A	123. B	130. A	
75. E	82. C	89. A	96. C	103. A	110. C	117. A	124. B	131. A	
76. E	83. D	90. B	97. D	104. D	111. E	118. C	125. A		
77. D	84. A	91 B	98. B	105. D	112. A	119. A	126. B		

3-§. Yuqori darajali ildizlar.

1. C	6. C	11. A	16. A	21. A	26. A	31. A	36. A	41. C	46. B	51. B
2. E	7. A	12. C	17. E	22. C	27. E	32. A	37. E	42. A	47. A	52. D
3. A	8. A	13. B	18. A	23. A	28. B	33. A	38. D	43. D	48. A	53. D
4. D	9. B	14. D	19. C	24. C	29. E	34. A	39. C	44. D	49. A	
5. D	10. A	15. D	20. A	25. B	30. A	35. D	40. B	45. D	50. C	

4-§. Ratsional ko'rsatkichli daraja.

1. B	4. D	7. B	10. D	13. E	16. B	19. E	22. C	25. A	28. A	31. C	34. A
2. E	5. A	8. B	11. D	14. D	17. B	20. E	23. B	26. C	29. A	32. C	35. B
3. B	6. B	9. E	12. E	15. C	18. E	21. C	24. B	27. C	30. C	33. A	

8-BOB. KVADRAT UCHHAD. UNING XOSSALARI VA GRAFIGI.

1-§. Kvadrat tenglama.

1. E	4. D	7. E	10. A	13. A	16. E	19. A	22. B	25. D	28. C	31. B
2. E	5. B	8. D	11. D	14. A	17. A	20. E	23. D	26. A	29. D	32. C
3. C	6. A	9. A	12. D	15. A	18. D	21. D	24. C	27. C	30. C	33. C

2-§. Kvadrat tengsizlik.

1. B	3. C	5. D	7. B	9. B	11 E	13. C	15. C	17. A	19. D
2. D	4. C	6. E	8. D	10. A	12. C	14. E	16. B	18. D	

3-§. Viyet teoremasi.

1. B	8. A	15. E	22. B	29. B	36. A	43. A	50. A	57. D	64. A	71. B
2. B	9. D	16. A	23. A	30. A	37. A	44. A	51. A	58. E	65. D	72. C
3. D	10. B	17. E	24. A	31. E	38. D	45. D	52. D	59. B	66. B	73. D
4. A	11. B	18. A	25. A	32. A	39. A	46. C	53. A	60. A	67. A	74. A
5. D	12. C	19. E	26. A	33. D	40. C	47. D	54. E	61. C	68. A	75. D
6. A	13. C	20. B	27. B	34. C	41. A	48. C	55. A	62. C	69. A	
7. B	14. C	21. A	28. C	35. E	42. A	49. A	56. B	63. A	70. B	

4-§. Kvadratik funksiya, uning grafigi.

1. D	6. D	11. A	16. B	21. E	26. A	31. C	36. D	41. C	46. B	51. C
2. E	7. D	12. E	17. C	22. C	27. A	32. A	37. C	42. D	47. C	52. D
3. E	8. E	13. E	18. D	23. C	28. D	33. E	38. D	43. A	48. D	53. B
4. C	9. A	14. C	19. D	24. E	29. A	34. E	39. C	44. A	49. D	54. D
5. A	10. D	15. A	20. A	25. E	30. B	35. C	40. C	45. E	50. A	

5-§. Parametrli misollar.

1. A	5. A	9. E	13. B	17. E	21. C	25. D	29. C	33. D	37. A	41. A
2. E	6. E	10. D	14. A	18. C	22. B	26. C	30. A	34. E	38. D	42. A
3. E	7. D	11. A	15. C	19. B	23. B	27. E	31. C	35. C	39. D	43. D
4. C	8. D	12. A	16. D	20. B	24. A	28. B	32. B	36. E	40. E	44. D

9-BOB. Turli tenglamalar va ularning sistemalari.

1-§. Yuqori darajali tenglamalar.

1. B	5. A	9. D	13. B	17. C	21. B	25. D	29. D	33. A	37. E	
2. D	6. B	10. C	14. A	18. B	22. B	26. A	30. D	34. C	38. A	
3. B	7. B	11. C	15. B	19. E	23. B	27. A	31. C	35. D	39. A	
4. D	8. B	12. B	16. A	20. E	24. D	28. A	32. E	36. C	40. C	

2-§. Ratsional tenglamalar.

1.	B	4.	A	7.	B	10.	A	13.	D	16.	A	19.	E	22.	D	25.	A	28.	D		
2.	B	5.	B	8.	E	11.	D	14.	C	17.	C	20.	A	23.	E	26.	D	29.	D		
3.	B	6.	C	9.	A	12.	C	15.	B	18.	E	21.	A	24.	B	27.	A	30.	A		

3-§. Irratsional tenglamalar.

1.	A	7.	C	13.	B	19.	A	25.	C	31.	A	37.	D	43.	E	49.	C	55.	B	61.	D
2.	A	8.	B	14.	A	20.	B	26.	C	32.	B	38.	A	44.	B	50.	C	56.	A	62.	D
3.	C	9.	C	15.	B	21.	D	27.	E	33.	A	39.	B	45.	B	51.	C	57.	D	63.	A
4.	E	10.	B	16.	A	22.	D	28.	D	34.	E	40.	C	46.	B	52.	E	58.	B	64.	A
5.	A	11.	A	17.	C	23.	D	29.	A	35.	B	41.	C	47.	D	53.	A	59.	E		
6.	A	12.	C	18.	B	24.	C	30.	C	36.	A	42.	E	48.	D	54.	D	60.	A		

4-§. Modulli tenglamalar.

1.	C	6.	D	11.	E	16.	D	21.	D	26.	B	31.	D	36.	A	41.	A	46.	D	51.	A	56.	D
2.	C	7.	E	12.	A	17.	A	22.	B	27.	A	32.	B	37.	E	42.	E	47.	D	52.	C		
3.	B	8.	C	13.	A	18.	A	23.	D	28.	C	33.	E	38.	E	43.	B	48.	C	53.	A		
4.	D	9.	B	14.	C	19.	E	24.	C	29.	E	34.	D	39.	E	44.	B	49.	E	54.	D		
5.	A	10.	B	15.	B	20.	E	25.	A	30.	D	35.	A	40.	A	45.	E	50.	C	55.	D		

5-§. Tenglamalar sistemalari.

1.	C	7.	D	13.	B	19.	A	25.	C	31.	A	37.	A	43.	D	49.	A	55.	D	61.	D
2.	D	8.	B	14.	C	20.	C	26.	E	32.	B	38.	B	44.	A	50.	E	56.	D	62.	B
3.	C	9.	E	15.	B	21.	C	27.	B	33.	C	39.	A	45.	A	51.	D	57.	D	63.	A
4.	D	10.	D	16.	D	22.	E	28.	B	34.	C	40.	A	46.	D	52.	A	58.	A	64.	B
5.	D	11.	C	17.	B	23.	A	29.	A	35.	A	41.	A	47.	A	53.	D	59.	E		
6.	B	12.	E	18.	A	24.	D	30.	A	36.	B	42.	D	48.	D	54.	C	60.	A		

10-BOB. Turli tengsizliklar.

1-§. Sonli tengsizliklar. Ularning xossalari.

1.	E	6.	C	11.	E	16.	A	21.	D	26.	A	31.	E	36.	D	41.	A	46.	E	51.	A
2.	E	7.	B	12.	A	17.	E	22.	A	27.	E	32.	C	37.	D	42.	D	47.	A	52.	A
3.	C	8.	C	13.	A	18.	A	23.	D	28.	C	33.	D	38.	A	43.	D	48.	C	53.	A
4.	E	9.	B	14.	E	19.	C	24.	A	29.	E	34.	B	39.	A	44.	B	49.	A	54.	A
5.	C	10.	B	15.	B	20.	A	25.	D	30.	E	35.	D	40.	C	45.	B	50.	A	55.	C

2-§. Yuqori darajali tengsizliklar.

1.	A	4.	E	7.	D	10.	B	13.	A	16.	B	19.	D	22.	E	25.	B				
2.	A	5.	C	8.	C	11.	E	14.	D	17.	E	20.	A	23.	A						
3.	A	6.	D	9.	B	12.	A	15.	A	18.	B	21.	B	24.	E						

3-§. Ratsional tengsizliklar.

1.	E	7.	A	13.	C	19.	D	25.	D	31.	A	37.	A	43.	C	49.	B	55.	B	61.	B	67.	A
2.	A	8.	E	14.	C	20.	D	26.	C	32.	B	38.	A	44.	A	50.	A	56.	A	62.	C	68.	B
3.	B	9.	B	15.	C	21.	D	27.	A	33.	A	39.	B	45.	D	51.	D	57.	B	63.	B	69.	B
4.	A	10.	A	16.	C	22.	D	28.	C	34.	C	40.	C	46.	A	52.	A	58.	D	64.	C	70.	A
5.	A	11.	A	17.	D	23.	E	29.	A	35.	A	41.	A	47.	A	53.	D	59.	D	65.	A	71.	C
6.	C	12.	C	18.	A	24.	D	30.	A	36.	C	42.	B	48.	B	54.	E	60.	D	66.	E	72.	B

4-§. Irratsional tengsizliklar.

1.	A	5.	C	9.	D	13.	C	17.	B	21.	C	25.	E	29.	B	33.	A	37.	C		
2.	B	6.	C	10.	A	14.	A	18.	D	22.	C	26.	E	30.	E	34.	C	38.	B		
3.	E	7.	C	11.	A	15.	D	19.	C	23.	B	27.	A	31.	A	35.	C	39.	B		
4.	A	8.	D	12.	D	16.	C	20.	D	24.	C	28.	B	32.	A	36.	E				

5-§. Modulli tengsizliklar.

1.	A	6.	C	11.	A	16.	C	21.	C	26.	C	31.	E	36.	A	41.	B	46.	E	51.	D	56.	D
2.	C	7.	D	12.	A	17.	A	22.	B	27.	E	32.	D	37.	C	42.	B	47.	A	52.	A	57.	A
3.	B	8.	D	13.	C	18.	A	23.	A	28.	C	33.	C	38.	E	43.	A	48.	C	53.	D	58.	C
4.	D	9.	E	14.	B	19.	D	24.	A	29.	C	34.	B	39.	C	44.	A	49.	B	54.	E		
5.	B	10.	B	15.	E	20.	C	25.	C	30.	D	35.	C	40.	C	45.	E	50.	C	55.	A		

6-§. Baholash usuli.

1. D	3. A	5. D	7. B	9. D	11. B	13. A	15. D	17. C	19. E	21. A
2. E	4. E	6. D	8. E	10. C	12. C	14. A	16. E	18. D	20. E	22. B

11-bob. Matnli masalalar.

1-§. Hisoblashga doir masalalar.

1. E	3. C	5. B	7. C	9. D	11. A	13. B	15. C	17. E	19. B	21. C
2. C	4. A	6. D	8. B	10. E	12. D	14. C	16. B	18. D	20. B	22. C

2-§. Sonlar nazaritasiga doir masalalar.

1. E	5. C	9. D	13. E	17. C	21. A	25. B	29. E	33. A	37. C
2. E	6. E	10. C	14. C	18. D	22. A	26. A	30. C	34. A	38. D
3. C	7. E	11. E	15. A	19. C	23. D	27. C	31. D	35. C	
4. D	8. E	12. D	16. A	20. B	24. D	28. D	32. E	36. C	

3-§. Harakatga doir masalalar.

1. E	3. D	5. C	7. D	9. D	11. E	13. B	15. A	17. C
2. B	4. D	6. B	8. B	10. C	12. C	14. B	16. A	

4-§. Bajarilgan ishga doir masalalar.

1. B	3. A	5. B	7. A	9. A	11. A	13. D	15. E	17. E	19. D	21. A
2. A	4. B	6. C	8. C	10. B	12. C	14. C	16. C	18. C	20. B	22. E

12-bob. Ketma-ketliklar. Arifmetik va geometrik progressiyalar.

1-§. Ketma-ketliklar.

1. B	3. B	5. A	7. D	9. A	11. E	13. E	15. C	17. C
2. A	4. D	6. A	8. A	10. D	12. A	14. A	16. A	18. B

2-§. Arifmetik progressiya.

1. C	10. A	19. D	28. D	37. D	46. C	55. A	64. D	73. E	82. D	91. A
2. A	11. E	20. C	29. B	38. A	47. B	56. B	65. C	74. C	83. A	92. D
3. C	12. C	21. B	30. A	39. B	48. A	57. A	66. D	75. B	84. A	93. B
4. A	13. A	22. D	31. B	40. D	49. A	58. C	67. C	76. A	85. C	94. A
5. E	14. A	23. D	32. C	41. A	50. E	59. C	68. A	77. A	86. A	95. B
6. C	15. C	24. C	33. E	42. D	51. C	60. A	69. A	78. B	87. A	96. E
7. E	16. C	25. A	34. E	43. D	52. A	61. C	70. E	79. D	88. B	97. E
8. D	17. B	26. C	35. D	44. D	53. D	62. A	71. E	80. B	89. C	98. C
9. A	18. C	27. A	36. A	45. C	54. A	63. B	72. C	81. B	90. A	99. B

3-§. Geometrik progressiya.

1. E	5. D	9. A	13. A	17. A	21. E	25. C	29. D	33. E	37. A	41. C
2. D	6. E	10. E	14. B	18. C	22. D	26. D	30. A	34. D	38. E	42. C
3. B	7. A	11. E	15. D	19. B	23. C	27. C	31. D	35. B	39. C	43. C
4. C	8. A	12. C	16. B	20. C	24. C	28. B	32. E	36. C	40. B	44. B

4-§. Cheksiz kamayuvchi geometrik progressiya.

1. A	3. C	5 C	7. D	9. A	11. E	13. A	15. D	17 A	19. A
2. A	4. B	6. E	8. A	10. E	12. E	14. C	16. D	18. A	

5-§. Aralash masalalar.

1. A	2. B	3. A	4. C	5. A	6. A	7. A	8. A	9. C

13-bob.Ko'rsatkichli funksiya.

1-§. Ko'rsatkichli funksiya. Xossalari va grafigi.

1. B	6. A	11. D	16. D	21. D	26. A	31. C	36. E	41. A	46. A	51. E
2. A	7. C	12. D	17. B	22. A	27. E	32. E	37. E	42. A	47. C	52. B
3. B	8. E	13. A	18. B	23. A	28. C	33. A	38. A	43. A	48. E	53. E
4. A	9. A	14. D	19. E	24. C	29. E	34. B	39. E	44. D	49. C	54. B
5. E	10. E	15. D	20. A	25. A	30. B	35. A	40. E	45 A	50. C	55. A

2-§. Ko'rsatkichli tenglamalar, ularning sistemalari.

1. A	9. D	17. E	25. A	33. E	41. C	49. B	57. E	65. A	73. D	81. E
2. C	10. A	18. D	26. B	34. C	42. E	50. A	58. C	66. E	74. C	82. B
3. E	11. A	19. E	27. A	35. A	43. B	51. C	59. E	67. D	75. A	83. D
4. B	12. D	20. A	28. C	36. E	44. B	52. E	60. A	68. B	76. C	84. B
5. A	13. C	21. E	29. C	37. B	45. E	53. A	61. B	69. C	77. A	85. C
6. A	14. D	22. C	30. D	38. D	46. D	54. E	62. A	70. D	78. D	86. C
7. B	15. A	23. D	31. B	39. C	47. A	55. E	63. A	71. A	79. E	
8. E	16. C	24. D	32. A	40. B	48. A	56. A	64. B	72. C	80. D	

3-§. Ko'rsatkichli tengsizliklar.

1. A	4. A	7. A	10. D	13. D	16. A	19. C	22. D	25. C	28. E	31. E	34. D
2. D	5. B	8. B	11. D	14. A	17. C	20. C	23. D	26. E	29. C	32. C	35. D
3. D	6. A	9. B	12. D	15. A	18. A	21. D	24. D	27. C	30. A	33. B	36. C

14-bob. Logarifmik funksiya.

1-§. Logarifm ta'rifi. Xossalari.

1. A	11. E	21. C	31. B	41. A	51. C	61. C	71. E	81. C	91. B	101. A	111. C
2. E	12. E	22. D	32. C	42. C	52. C	62. C	72. E	82. E	92. B	102. A	112. E
3. B	13. B	23. E	33. A	43. D	53. D	63. D	73. C	83. C	93. A	103. A	113. C
4. A	14. B	24. A	34. A	44. A	54. C	64. C	74. B	84. A	94. A	104. D	114. A
5. B	15. D	25. C	35. B	45. A	55. D	65. C	75. E	85. A	95. D	105. C	115. A
6. A	16. D	26. C	36. C	46. B	56. D	66. B	76. A	86. A	96. B	106. A	116. D
7. D	17. E	27. A	37. D	47. D	57. C	67. A	77. C	87. E	97. E	107. A	117. C
8. C	18. A	28. A	38. E	48. A	58. A	68. D	78. D	88. A	98. E	108. B	118. B
9. D	19. C	29. C	39. A	49. A	59. C	69. E	79. A	89. B	99. A	109. E	
10. B	20. B	30. D	40. D	50. D	60. A	70. A	80. A	90. C	100. D	110. E	

2-§. Logarifmik funksiya. Xossalari va grafigi.

1. A	4. B	7. D	10. A	13. B	16. B	19. A	22. A	25. D	28. B
2. C	5. E	8. D	11. C	14. B	17. B	20. B	23. C	26. C	
3. D	6. B	9. D	12. A	15. B	18. A	21. B	24. A	27. D	

3-§. Logarifmik tenglamalar.

1. D	9. D	17. B	25. A	33. C	41. D	49. B	57. D	65. A	73. A	81. A	89. A
2. D	10. E	18. E	26. C	34. A	42. C	50. D	58. A	66. A	74. A	82. A	90. A
3. D	11. A	19. C	27. A	35. C	43. E	51. C	59. A	67. C	75. B	83. E	91. C
4. D	12. B	20. C	28. D	36. B	44. B	52. B	60. B	68. A	76. B	84. D	92. A
5. E	13. D	21. A	29. A	37. C	45. B	53. B	61. A	69. D	77. E	85. B	93. C
6. C	14. D	22. C	30. A	38. C	46. A	54. B	62. A	70. E	78. A	86. E	94. C
7. B	15. B	23. C	31. D	39. C	47. A	55. A	63. B	71. A	79. D	87. D	95. A
8. D	16. C	24. C	32. D	40. C	48. D	56. C	64. A	72. B	80. B	88. C	

4-§. Logarifmik tengsizliklar.

1. E	7. D	13. D	19. A	25. C	31. A	37. E	43. E	49. E	55. D	61. A	67. D
2. E	8. A	14. B	20. B	26. B	32. B	38. C	44. B	50. E	56. C	62. E	68. B
3. A	9. D	15. D	21. A	27. A	33. C	39. B	45. B	51. E	57. E	63. D	69. E
4. B	10. A	16. E	22. D	28. A	34. E	40. A	46. E	52. C	58. B	64. C	
5. E	11. D	17. D	23. C	29. A	35. D	41. B	47. C	53. E	59. A	65. A	
6. E	12. E	18. E	24. C	30. E	36. A	42. D	48. D	54. E	60. D	66. D	

5-§. Aralash savollar.

1. B	3. C	5. E	7. C	9. D	11. D	13. D	15. A
2. E	4. D	6. B	8. C	10. C	12. C	14. A	16. C

Takrorlashga doir savollar.

1. E	2. A	3. A	4. B	5. A	6. D	7. D	8. C	9. C	10. D	11. D	12. A

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For the ones who sacrifice their lives for the salvation of the mankind
And the ones who are willing to drop tears to make the others smile...

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