YANGI TESTLAR

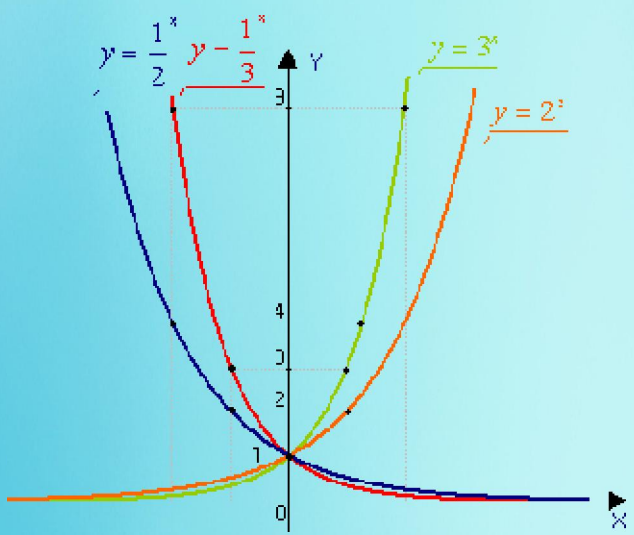
Nodir Ashurov

MATEMATIKA

1 - qism

Oliy o`quv yurtlariga kiruvchilar uchun
yangi testlar to`plami

Telegram kanal:
@matematika_informatika



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1-qism

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Qarshi-2017

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Matematika, 1-qism. Oliy o`quv yurtlariga kiruvchilar uchun.

Ushbu qo`llanma matematika fani bo`yicha mavzulashtirilgan misollar va testlardan tashkil topgan. Qo`llanmaning 1-qismi 18 ta mavzuni o`z ichiga olgan bo`lib, har bir mavzu ikki qismdan iborat. Mavzuning birinchi qismi o`qituvchi yordamida yechiladigan misol va testlardan (1100 ta atrofida) iborat. Ikkinchi qismida esa mustaqil ishlash uchun testlar (2500 ta atrofida) berilgan.

Qo`llanma umumta`lim maktab o`quvchilari, akademik litsey, kasb-hunar kolleji talabalari, abituriyentlar uchun mo`ljallangan.

Qo`llanma yuzasidan taklif va mulohazalar uchun telefon: **+99897-951-40-99** (Telegram)

1. Natural va butun sonlar

Juft va toq sonlar

1. n+7 soni juft bo`lsa, quyidagilardan qaysi biri toq son?
A) n^2+n B) 3n+5 C) 2n−8
D) 2^n-n^2 E) $4n^2+n+3$

2. a,b,c natural sonlar. $\frac{a+2b}{4}=c$ bo`lsa, quyidagilardan qaysi bir to`g`ri?
A) c toq bo`lsa, a toq
B) b toq bo`lsa, c juft
C) a juft bo`lsa, c toq
D) a juft
E) a toq

3. a,b,c noldan farqli butun sonlar va a+b=c bo`lsa, a+b+c yig`indi quyidagilardan qaysi biriga teng bo`la olmaydi?
A) 40 B) 48 C) 59 D) 70 E) 84

Ketma-ket butun sonlarning yig`indisi

4. $1+2+3+\ldots+20$ ni hisoblang.
5. $1+2+3+\ldots+(n+1)$ ni hisoblang.
6. $10+11+12+\ldots+25$ yig`indi nechaga teng?

Ketma-ket juft sonlarning yig`indisi

7. 2+4+6+...+38 ni hisoblang.
8. 2+4+6+...+(2k+4) yig`indi nechaga teng?

Ketma-ket toq sonlarning yig`indisi

9. 1+3+5+...+21 yig`indi nechaga teng?
10. 15+17+19+...+49 yig`indi nechaga teng?
11. $\frac{1}{2}+\frac{2}{3}+\frac{3}{2}+\frac{4}{3}+\cdots+\frac{15}{2}+\frac{16}{3}$ ning qiymatini toping.
A) 40 B) 45 C) 50 D) 56 E) 60

Sonlarga doir misollar

12. Ikki xonali bir sonning raqamlari o`rni almashtirilsa, 63 ga ortadi. Bu sonning raqamlari orasidagi farq nechaga teng?
A) 3 B) 5 C) 7 D) 9 E) 11

13. abc, bca, cab uch xonali sonlarning yig`indisi 555 bo`lsa, a+b+c yig`indi nechaga teng?
A) 2 B) 3 C) 4 D) 5 E) 6

14. Uch xonali aaa soni a dan necha marta katta?
A) 11 B) 3 C) 33 D) 111 E) 333

15. Ikki xonali bir sonning raqamlari yig`indisi sonning $\frac{1}{4}$ iga teng bo`lsa, bu shartni qanoatlantiradigan sonlar nechta?
A) 2 B) 3 C) 4 D) 5 E) 6

16. x=A4BC2, y=A2BC4. x va y besh xonali sonlar bo`lsa, x−y nechaga teng?
A) 2 B) 8 C) 198 D) 1998 E) 2000

17. AB+BA+AA+BB=154, bular ikki xonali sonlar bo`lsa, AB sonining eng katta qiymati nechaga teng?
A) 25 B) 43 C) 52 D) 61 E) 70

18. abc3 to`rt xonali sonini A deb belgilasak, abc34 besh xonali sonini quyidagilardan qaysi biri orqali ifodalasa bo`ladi?
A) A+4 B) 4A C) 10A+4
D) 100A+4 E) A+40

19. Har biri eng kamida uch xonali bo`lgan 5 sonning har birining birlar xonasidagi raqam 2 ga kamaytirilsa, o`nlar xonasidagi raqam 3 ga kamaytirilsa va yuzlar xonasidagi raqam 2 ga oshirilsa, bu 5 ta sonning yig`indisi qancha ortadi?
A) 840 B) 820 C) 800 D) 750 E) 600

Natural sonlarda qo`shish va ko`paytirish

20. Quyidagi ko`paytirish amali bajarishdagi har bitta nuqta bitta raqamni ifodalasa, IV qatordagi uch xonali sonni toping.

```
 41·    I
  ·3    II
 ····   III
 ···    IV
 ·5·5   V
```

A) 830 B) 720 C) 622 D) 525 E) 415

21. Quyidagi ko`paytirish amalida birinchi ko`paytuvchi nechaga teng?

```
   ····
    125
  ·····
  2450
 ·····
 ·····
```

A) 1125 B) 1225 C) 1450
D) 2450 E) 2500

22. Quyidagi ko`paytirish amalini bajarishda ab, cd va ef ikki xonali sonlar. ef cd ning tagiga xato yozilgan. Bu ko`paytmaning haqiqiy qiymati necha?

```
   a b
 x 1 5
   c d
+  e f
 1 0 8
```

A) 260 B) 270 C) 275 D) 280 E) 300

23. x=1·2+2·3+3·4+...+40·41,
y=5·4+10·6+15·8+...+200·82
bo`lsa, y x dan necha marta katta?
A) 6 B) 8 C) 10 D) 12 E) 14

24. Ketma−ket 11 ta toq natural sonlarning yig`indisi 957 bo`lsa, bu sonlarning eng kattasi nechaga teng?
A) 91 B) 95 C) 97 D) 99 E) 103

25. 1·2+2·3+3·4+...+11·12 yig`indining har bir hadidagi ikkinchi ko`paytuvchi

67. x sonining 5 asosga ko`ra yozilishi $ab30_5$ bo`lsa, x−2 sonining 5 asosga ko`ra yozilishi qaysi?
A) $ab23_5$ B) $ab22_5$ C) $ab31_5$
D) $ab10_5$ E) $ab01_5$

68. $39_a=49_b$ bo`lsa, a+b eng kamida necha bo`ladi?
A) 7 B) 14 C) 21 D) 28 E) 35

69. $\frac{963}{25}$ kasrni 5 asosda yozing.

70. $23{,}14_5$ sonini 10 asosda yozing.

71. 15! sonini 2 asosga ko`ra yozilsa, oxirida necha xonasi nol bo`ladi?
A) 9 B) 10 C) 11 D) 12 E) 13

72. $A=\underbrace{(111\ldots1)}_{\text{n ta}}$ soni 2 asosda yozilgan. A ni 10 asosda yozganda 511 bo`lsa, n nechaga teng?
A) 7 B) 8 C) 9 D) 10 E) 11

Bo`linish belgilari

73. 7777 sonini 3 ga bo`lgandagi qoldiqni toping.

74. 2344, 95756, 53500, 7314, 23530 sonlari 4 ga bo`linadimi?

75. 3459 ni 4 ga bo`lgandagi qoldiqni toping.

76. 5675, 34260, 4376, 83404 sonlari 5 ga bo`linadimi?

77. 47832 soni 6 ga bo`linadimi?

78. 43a2b besh xonali sonning 6 ga bo`linishi uchun a ning olishi mumkin bo`lgan nechta turli qiymati bor?
A) 4 B) 6 C) 8 D) 9 E) 10

79. 7354235 soni 7 ga bo`linadimi?

80. 345000, 23120, 567322 sonlari 8 ga bo`linadimi?

81. a585 to`rt xonali sonni 9 ga bo`linishi uchun a nechaga teng bo`lishi kerak?

82. 77777777 sonini 9 ga bo`lgandagi qoldiqni toping.

83. Uch xonali abc soni 9 ga bo`linadi, 10 ga bo`lgandagi qoldiq 4 ga teng. a+b yig`indining bu shartni qanoatlantiradigan nechta qiymati bor?
A) 1 B) 2 C) 3 D) 4 E) 5

84. 375826 soni 11 ga bo`linadimi?

85. To`rt xonali 34ab soni 15 ga bo`linishi uchun a ning nechta turli qiymati bor?
A) 3 B) 5 C) 6 D) 7 E) 8

86. aa7aab sonining 30 ga bo`linishi uchun a ning nechta turli qiymati bor?
A) 1 B) 2 C) 3 D) 4 E) 5

87. Barcha raqamlari noldan va bir−biridan farqli bo`lgan to`rt xonali eng katta juft son quyidagilardan qaysi biri bilan qoldiqsiz bo`linmaydi?
A) 2 B) 3 C) 4 D) 11 E) 12

88. 23 ga bo`linadigan uch xonali eng katta son necha?

89. 15!+16! soni quyidagilardan qaysi biriga bo`linmaydi?
A) 21 B) 11 C) 13 D) 17 E) 19

90. x<2345 shartini qanoatlantiradigan va 3 ga bo`linadigan nechta natural son bor?
A) 770 B) 780 C) 781 D) 782 E) 780

91. 234<x<567 shartni qanoatlantiradigan va 9 ga bo`linadigan nechta butun son bor?
A) 33 B) 34 C) 35 D) 36 E) 37

92. x<800 shartni qanoatlantiradigan x natural sonlardan nechtasi 3 yoki 4 ga bo`linadi?
A) 399 B) 465 C) 531 D) 540 E) 600

93. x va y musbat butun son. 5x+3y=300 tenglikni qanoatlantiradigan nechta y soni bor?
A) 17 B) 18 C) 19 D) 20 E) 21

Tub sonlar

94. 1260 sonini tub ko`paytuvchilarga ajrating.

O`zaro tub sonlar

95. 6 va 35, 15 va 22 o`zaro tubmi?

Sonning natural bo`liuvchilari

96. 16 sonining nechta natural bo`luvchisi bor?

97. 72 sonining nechta natural bo`luvchisi bor?

98. 48 sonining nechta butun bo`luvchisi bor?
A) 5 B) 10 C) 15 D) 20 E) 30

99. $A=6^4\cdot15^3$ sonining nechta musbat bo`luvchisi bor?

100. $50\cdot2^m$ sonining 15 ta musbat bo`luvchisi bo`lsa, m nechaga teng?
A) 1 B) 2 C) 3 D) 4 E) 5

Sonning natural bo`luvchilari yig`indisi

101. 27 sonining musbat bo`luvchilari yig`indisini toping.

102. 72 sonining musbat bo`luvchilari yig`indisini toping.

103. 60 sonining musbat bo`luvchilari yig`indisini toping.

104. $x=2^5\cdot3^4$ sonining musbat bo`luvchilari yig`indisi nechaga teng?
A) 7623 B) 7600 C) 7000
D) 6000 E) 5350

EKUB va EKUK

105. 300 va 630 sonlarining EKUBi va EKUKini toping.

106. 12, 9 va 15 sonlariga bo`linadigan eng kichik natural son nechaga teng?
A) 120 B) 135 C) 36 D) 90 E) 180

107. 30, 42 va 35 sonlariga bo`linadigan to`rt xonali eng katta natural sonni toping.

108. 1997 soniga qaysi eng kichik sonni qo`shganimizda 15, 18 va 20 ga bo`linadi?

109. 9,12 va 15 ga bo`linganda 4 qoldiq qoladigan eng kichik son nechaga teng?

110. a, b, c musbat butun sonlar. x=3a+2=5b+4=7c+6 shartini qanoatlantiradigan uch xonali eng katta son nechaga teng?

111. 6, 9 va 14 ga bo`linganda mos ravishda 4,7,12 qoldiq qoladigan eng kichik natural son nechaga teng?

112. a,b,c musbat butun sonlar. x=5a+2=6b+4=7c+1 shartini qanoatlantiradigan uch xonali eng kichik natural son nechaga teng?

113. 5 ga bo`linganda 3 va 8 ga bo`linganda 5 qoldiq qoladigan uch xonali eng katta sonning raqamlari yig`indisi nechaga teng?
A) 18 B) 19 C) 20 D) 21 E) 27

114. Tomonlari uzunliklari 120 va 90 bo`lgan to`g`ri to`rtburchak shaklidagi bir hovlining atrofini teng uzoqlikdagi ustunlar bilan o`ralayapti. Eng kamida nechta ustun kerak?
A) 7 B) 14 C) 20 D) 28 E) 35

115. A,B,C shofyorlardan A 15 kunda, B 18 kunda, C 21 kunda bir safarga ketadi. Bir kunda safarga ketgan bu uch shofyor eng kamida necha kundan keyin yana bir kunda safarga ketishadi?
A) 90 B) 105 C) 180 D) 630 E) 1260

116. O`lchamlari 4, 6 va 15 bo`lgan qutilar yon−yonga, ust−ustiga qo`yilib, eng kichik hajmli bir kub yasalsa, nechta quti kerak bo`ladi?
A) 900 B) 800 C) 750 D) 650 E) 600

117. O`lchamlari 30, 18, 24 bo`lgan bir omborga, omborni hech joyini bo`sh qoldirmay eng katta va teng tomonli qutilardan nechtasini joylash mumkin?
A) 70 B) 60 C) 50 D) 40 E) 30

118. 30 bilan A sonining EKUK va EKUBlari ko`paytmasi 840 bo`lsa, A soni nechaga teng?
A) 28 B) 30 C) 32 D) 34 E) 36

119. 60, 18 va x sonlarining umumiy bo`luvchilarining eng kattasi 6 va umumiy karralilarining eng kichigi 2520. Bu shartni qanoatlantiradigan eng kichik x soni nechaga teng?

120. $0<x\leq 3825$ shartni qanoatlantira−digan ham 3 ga ham 5 ga bo`linadigan nechta natural son bor?
A) 200 B) 255 C) 300 D) 350 E) 400

121. $A=2^3\cdot 3^2\cdot 5^2$, $B=2^4\cdot 3^3\cdot 7\cdot 5$ bo`lsa, A va B ning nechta musbat umumiy bo`luvchilari bor?
A) 18 B) 20 C) 24 D) 26 E) 28

122. $\frac{5}{6}$ va $\frac{3}{8}$ kasrlardan butun son marta katta bo`lgan eng kichik sonni toping.

123. Elektron doskadagi uchta chiroq $\frac{1}{5}$, $\frac{3}{10}$ va $\frac{5}{8}$ daqiqalik vaqt orasida yonib o`chyapti. Bir vaqtda yongandan so`ng, yana qancha vaqtda bir vaqtda yonadi?

124. 12 sonini eng kichik qaysi son bilan ko`paytirsak, bir natural sonning kvadratiga teng bo`ladi?
A) 2 B) 3 C) 4 D) 5 E) 6

125. a, $x\in N$ bo`lsa, $1500\cdot a=x^3$ tenglikni qanoatlantiradigan eng kichik a soni nechaga teng?
A) 2 B) 3 C) 6 D) 9 E) 18

Natural sonlar. Test−1

1. Raqamlari turli bo`lgan ikki butun sondan biri 4000 dan katta eng kichik butun son, ikkinchisi 5000 dan kichik eng katta butun son. Bu ikki sonning farqi qancha?
A) 975 B) 957 C) 885 D) 858 E) 998

2. Raqamlari turli to`rt xonali eng kichik natural son bilan raqamlari turli uch xonali eng katta natural sonning farqi qancha?
A) 36 B) 40 C) 42 D) 49 E) 53

3. Uch xonali 4 ta turli musbat butun sonlarning yig`indisi 3208 ga teng. Bu sonlardan eng kichigi eng kamida nechaga teng bo`ladi?
A) 210 B) 211 C) 207 D) 214 E) 305

4. a, b, c, d turli 4 ta raqam bo`lib, ab va cd ikki xonali sonlardir. Bu ikki sonning yig`indisi eng ko`pi bilan necha bo`lishi mumkin?
A) 174 B) 179 C) 183 D) 185 E) 196

5. Uch xonali natural son bilan ikki xonali natural sonning yig`indisi eng kamida nechaga teng bo`ladi?
A) 100 B) 101 C) 110
D) 1090 E) 1098

6. Turli to`rt xonali uchta natural sonning yig`indisi 7974 bo`lsa, bu sonlarning eng kattasi eng kamida nechaga teng bo`ladi?
A) 5975 B) 5973 C) 2567
D) 2657 E) 2659

7. a, b, c noldan farqli butun sonlar. 5ab+3=6c tengligi uchun quyidagilardan qaysi biri aniq to`g`ri?
A) a toq son
B) b toq son
C) a va b toq son
D) a va b juft son
E) a toq son, b juft son

8. x butun son bo`lsa, 2x+1 dan keyin keladigan ilk ikkita ketma−ket juft sonlarning yig`indisi nechaga teng?
A) 4x+1 B) 4x+3 C) 4x+4
D) 4x+5 E) 4x+6

9. x+2 juft son bo`lsa, quyidagilardan qaysi biri juft son emas?
A) 2x+2 B) 2x−4 C) x−2
D) x+1 E) x

10. a va b toq son, c va d juft son bo`lsa, quyidagi ifodalardan qaysi biri har doim juft son?
A) $a^2 \cdot b^4$ B) $a \cdot d + b^2$ C) $a \cdot c^5 + b \cdot d^2$
D) 2a+b+c+d E) a·b·c−b

11. Quyidagi sonlardan qaysi biri har doim toq? ($n \in N$)
A) 7! B) 4^n+3n C) 5^n+3
D) $5n-2^n$ E) 2^n+3^{n+1}

12. 4390 sonini 360 ga bo`lgandagi qoldiq a bo`lsa, a ni 6 ga bo`lgandagi qoldiq nechaga teng?
A) 0 B) 1 C) 2 D) 3 E) 4

13. $\frac{4a+5}{a}$ ifoda butun son bo`ladigan a ning butun qiymatlari yig`indisi nechaga teng?
A) 6 B) 5 C) 1 D) 0 E) −3

14. Har biri uch xonali va turli beshta natural sonning yig`indisi 666 bo`lsa, eng katta sonning eng katta qiymati nechaga teng bo`ladi?
A) 244 B) 252 C) 260 D) 266 E) 272

15. n+1 juft son bo`lsa, quyidagilardan qaysi biri toq son bo`ladi?
A) n^2+1 B) n^3+1 C) $(n+1)^3$
D) n^2-1 E) n^5-2

16. A, B, C, D, E, F larning har biri noldan farqli raqamlar bo`lsa, AB+BA+CD+DC+EF+FE=231 bo`lsa, A+B+C+D+E+F yig`indi nechaga teng?
A) 11 B) 21 C) 23 D) 31 E) 41

17. Quyidagi ko`paytirish amalida d+e+f yig`indi nechaga teng?

```
   a b c
 x   2 4
 -------
   . . .
+  d e f
 -------
   5 9 5 2
```

A) 12 B) 14 C) 18 D) 19 E) 20

18. Ikki xonali turli 4 ta natural sonlarning yig`indisi 317 ga teng. Bu sonlarning eng kichigi eng kamida nechaga teng bo`ladi?
A) 17 B) 19 C) 21 D) 23 E) 25

19. a,b,c va har bir nuqta birorta raqamni ifodalasa, b nechaga teng?

```
    a b c
 x  . 2 .
 ---------
    9 9 0
  9 9 0
+ 9 9 0
 ---------
  . . . . .
```

A) 3 B) 4 C) 5 D) 8 E) 9

20. Quyidagi bo`lish amalida bo`linuvchi nechaga teng?

```
 . . . .  | . .
 -------  |-----
=  . .    |  4 5
   -----
   . . .
-  1 2 0
 -------
       6
```

A) 1086 B) 1356 C) 1350
D) 1080 E) 1111

21. Quyidagi ko`paytirish amalida har bir nuqta bir raqamni ifodalasa, ko`paytma nechaga teng?

$$\begin{array}{r} \bullet\,\bullet \\ \times\quad 2\bullet \\ \hline \bullet\,\bullet\,5 \\ +\,74 \\ \hline \bullet\,\bullet\,\bullet \end{array}$$

A) 975 B) 925 C) 875 D) 825 E) 675

22. Ikki xonali eng kichik butun son bilan uch xonali eng kichik natural sonning yig`indisi nechaga teng?

A) 110 B) 99 C) 75 D) 60 E) 1

23. Quyidagi bo`lish amalida x nechaga teng?

$$\begin{array}{r|l} x & 6 \\ \hline -\,\bullet\,\bullet & y \\ \hline 5 & \end{array} \qquad \begin{array}{r|l} x & 7 \\ \hline -\,\bullet\,\bullet & y-1 \\ \hline 0 & \end{array}$$

A) 12 B) 67 C) 77 D) 84 E) 91

24. Quyidagi bo`lish amalida bo`linuvchi nechaga teng?

$$\begin{array}{r|l} \bullet\,\bullet\,\bullet\,\bullet & \bullet\,\bullet \\ \hline -\,360 & 87 \\ \hline \bullet\,\bullet\,\bullet & \\ +\,\bullet\,\bullet\,\bullet & \\ \hline 41 & \end{array}$$

A) 3975 B) 3956 C) 3756
D) 3056 E) 2901

Natural sonlar. Test−2

1. Yetti xonali abcabc3 sonini uch xonali abc soniga bo`lgandagi bo`linma va qoldiqning yig`indisini nechaga teng?

A) 1004 B) 10104 C) 10113 D) 103 E) 10013

2. Quyidagi qo`shish amalida uch xonali uchta son qo`shilmoqda. Eng katta qo`shiluvchini toping.

$$\begin{array}{r} abc \\ bca \\ +\quad cab \\ \hline 155d \end{array}$$

A) 950 B) 941 C) 860 D) 851 E) 419

3. Quyidagi bo`lish amalida bo`linuvchi nechaga teng?

$$\begin{array}{r|l} \bullet\,\bullet\,\bullet\,\bullet & \bullet\,\bullet \\ \hline -\,138 & \bullet\,\bullet \\ \hline \bullet\,\bullet\,\bullet\,\bullet & \\ -\quad 46 & \\ \hline 10 & \end{array}$$

A) 1346 B) 1436 C) 1546 D) 1626 E) 1716

4. Quyidagi bo`lish amalida x bir raqam bo`lsa, x quyidagilardan qaysi biri bo`la olmaydi?

$$\begin{array}{r|l} 69\ldots & 3x \\ \hline & 1\ldots \end{array}$$

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

5. a va b natural sonlar bo`lsa, a ning eng katta qiymati nechaga teng?

$$\begin{array}{r|l} a & 2b+3 \\ \hline -\,\bullet & 8 \\ \hline 4b-1 & \end{array}$$

A) 35 B) 43 C) 48 D) 52 E) 60

6. x va y noldan farqli birorta raqam bo`lsa, quyidagi amalning natijasi nechaga teng?

$$\begin{array}{r} xxx \\ -\,yyy \\ \hline \bullet\,\bullet\,2 \end{array}$$

A) 222 B) 122 C) 112 D) 322 E) 332

7. Ikki xonali son raqamlarining o`rni almashtirilganda hosil bo`lgan son bilan qo`shilganda 143 ga teng bo`lsa, sonning raqamlari yig`indisi nechaga teng?

A) 9 B) 10 C) 11 D) 12 E) 13

8. A53B1 va A19B3 besh xonali sonlarning ayirmasi nechaga teng?

A) 3398 B) 3038 C) 3294 D) 3303 E) 3408

9. Ikki xonali sonning 5 martasi, bu sonning raqamlari o`rnini alshtirishdan hosil bo`lgan sondan 6 marta katta. Bu sonning raqamlari ko`paytmasi nechaga teng?

A) 15 B) 18 C) 20 D) 24 E) 28

10. Besh xonali abab9 soni ikki xonali ab soniga bo`lingandagi bo`linmaning qoldiqqa bo`lishdan qolgan qoldiq nechaga teng?

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

11. Ikki xonali ab sonining boshiga 5 qo`yilganda hosil bo`ladigan 5ab soni ab sonidan 11 marta katta bo`ladi. a+b nechaga teng?

A) 2 B) 3 C) 4 D) 5 E) 6

12. Ush xonali abc sonining birlar xonasi va yuzlar xonasi o`rni almashtirilsa, birinchi sondan 99 ga katta bo`lgan son hosil bo`ladi. a−c nechaga teng?

A) 2 B) 1 C) 0 D) −1 E) −2

13. ab ikki xonali son. $\frac{ab}{a}+\frac{ba}{a}=44$ bo`lsa, b a dan necha marta katta?

A) 2 B) 3 C) 4 D) 5 E) 6

14. ab va ba ikki xonali natural sonlar. $\frac{ab+ba}{ab-ba}=11$ bo`lsa, a·b nechaga teng?

A) 20 B) 30 C) 42 D) 56 E) 72

15. a,b,c, raqamlar. ab ikki xonali sonning 10 martasidan c raqamining 9 martasi ayrilsa, 513 hosil bo`ladi. a+b+c nechaga teng?

A) 9 B) 10 C) 11 D) 12 E) 15

16. Har biri eng kamida 5 xonali bo`lgan 5 ta sonning o`nlar xonasi 3 ga orttirilsa, yuzlar xonasi

6 ga orttirilsa va minglar xonasi 1 ga kamaytirilsa, bu sonlarning yig`indisi nechaga kamayadi?
A) 1850 B) 1450 C) 1205 D) 850 E) 750

17. To`rt xonali sonning birlar xonasidagi raqam 4 ga orttirilsa, o`nlar xonasidagi raqam 4 ga kamaytirilsa, yuzlar xonasidagi raqam 5 ga kamaytirilsa, minglar xonasidagi raqam 5 ga orttirilsa, son qanday o`zgaradi?
A) 4464 ga ortadi B) 4464 ga kamayadi
C) o`zgarmaydi D) 464 ga kamayadi
E) 464 ga ortadi

18. 256 soni abc uch xonali soni bilan ko`paytirilayapti. b ni 1 ga orttirilsa, c ni 2 ga kamaytirlsa, bu ko`paytma qanday o`zgaradi?
A) 2048 ga ortadi B) 2040 ga kamayadi
C) 2088 ga ortadi D) 2560 ga ortadi
E) 512 ga kamayadi

19. Uch xonali natural sonning birlar va yuzlar xonasidagi raqamlarning yig`indisi 10 ga teng. Bu uch xonali sonning birlar va yuzlar xonasidagi raqamlarning o`rni almashtirilsa, qiymati 396 ga ortadi. Uch xonali sonning birlar xonasida qanday raqam bor?
A) 3 B) 4 C) 5 D) 6 E) 7

20. Uch xonali xyz soni uchun x=y+1 va y=z+1. Bu shart bajariladigan nechta uch xonali juft natural son bor?
A) 2 B) 3 C) 4 D) 5 E) 6

21. $\frac{a+b}{a\cdot b}=\frac{1}{2}$ bo`lsa, ab ko`rinishidagi ikki xonali sonlar nechta?
A) 1 B) 2 C) 3 D) 4 E) 5

22. Turli ikki xonali uchta natural sonning yig`indisi 1a+ab+b4=69 bo`lsa, ab sonining eng katta qiymati nechaga teng?
A) 41 B) 32 C) 23 D) 21 E) 50

23. a,b,c,d lar ketma−ket butun sonlar bo`lsa, (a+c)−(b+d) ning qiymati nechaga teng?
A) −3 B) −2 C) 0 D) 1 E) 2

24. Bo`lish amalida 4 xonali bo`lgan bo`linuvchining minglar xonasi 8, yuzlar xonasi 5. Bo`luvchi 4a ko`rinishida. Bo`linma uch xonali va yuzlar xonasi 1. Bu bo`lish amalida a qaysi songa teng bo`la olmaydi?
A) 2 B) 3 C) 4 D) 6 E) 9

Natural sonlar. Test−3

1. a,b,c musbat butun sonlar va $ab=\frac{2c+1}{3}$ bo`lsa, quyidagilardan qaysi biri to`g`ri?
A) a va b toq sonlar B) a toq son, b juft son
C) a va b juft son D) a juft son, b toq son
E) a yoki b dan faqat bittasi toq son

2. a,b,c noldan farqli butun sonlar. 3ab+5=8c bo`lsa, quyidagilardan qaysi biri to`g`ri?
A) a toq son B) b toq son
C) a va b toq son D) a va b juft son
E) a toq son, b juft son

3. $\frac{2a+5}{a}=b$ tengligida a va b butun sonlar bo`lsa, quyidagilardan qaysi biri to`g`ri?
A) b juft son B) a juft son
C) b toq, a toq son D) a toq, b juft son
E) a juft, b toq son

4. x va y musbat butun sonlar va x=3y bo`lsa, quyidagilardan qaysi biri har doim to`g`ri?
A) x+y toq son B) x juft son
C) $\frac{x}{y}$ juft son D) x^2-y^2 juft son
E) y toq son

5. $2^{10}\cdot5^8$ soni necha xonali?
A) 7 B) 8 C) 9 D) 10 E) 11

6. $4^{10}\cdot15^3\cdot25^8$ ko`paytma necha xonali?
A) 16 B) 18 C) 19 D) 20 E) 21

7. $A=96^3\cdot625^4$ soni necha xonali?
A) 13 B) 15 C) 18 D) 19 E) 21

8. 3a=5b, a va b natural son bo`lsa, quyidagilardan qaysi biri a+b ga teng bo`la olmaydi?
A) 24 B) 72 C) 104 D) 124 E) 152

9. Quyidagi bo`lish amalida a·c ko`paytmani 8 ga bo`lgandagi qoldiq nechaga teng?

a | 8
− | b
7

c | 8
− | d
5

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

10. Quyidagi bo`lish amalida k ni toping. (c>4)

a | 2
− | b
0

b | 3
− | c
2

a | c
− | k

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

11. Quyidagi bo`lish amalida d nechaga teng?

9ab28 | 18
− | dcne
xy

A) 7 B) 6 C) 5 D) 4 E) 3

12. a,b,c raqamlar.(c≠0) a+b+c ni toping.

abb | ac
− abb | ac
000

A) 11 B) 10 C) 9 D) 8 E) 7

13. a va b musbat butun sonlar va $\frac{5}{a}=\frac{b}{3}=c$ bo`lsa, c ning eng katta qiymatida a+b+c nechaga teng?
A) 16 B) 19 C) 21 D) 27 E) 33

14. ABB uch xonali natural son. $\frac{ABB}{x+3}=15$ tenglikni qanoatlantiradigan x ning eng kichik natural qiymati nechaga teng?
A) 9 B) 12 C) 14 D) 17 E) 29

14. Kvadrat funksiya

$f(x)=ax^2$ funksiyaning grafigi

1. Quyidagi funksiyalarning grafiklarini chizing.

a) $y=x^2$

b) $y=-x^2$

c) $y=5x^2$

d) $y=-\frac{1}{3}x^2$

$f(x)=ax^2+c$ funksiyaning grafigi

2. f:R→R, $f(x)=2x^2+3$ funksiyaning grafigini chizing.

3. f:R→R, $f(x)=-\frac{1}{2}x^2+1$ funksiyaning grafigini chizing.

4. f:R→R, $f(x)=x^2-4$ funksiyaning grafigini chizing.

$f(x)=a(x-r)^2$ funksiyaning grafigi

5. f:R→R, $f(x)=2(x-3)^2$ funksiyaning grafigini chizing.

6. f:R→R, $f(x)=-(x+2)^2$ funksiyaning grafigini chizing.

$f(x)=a(x-r)^2+k$ funksiyaning grafigi

7. f:R→R, $f(x)=2(x-1)^2-2$ funksiyaning grafigini chizing.

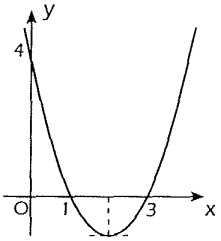
$f(x)=ax^2+bx+c$ funksiyaning grafigi

8. f:R→R, $f(x)=x^2-2x-3$ funksiyaning grafigini chizing.

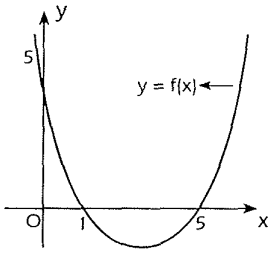
9. f:R→R, $f(x)=-x^2+4x$ funksiyaning grafigini chizing.

10. f:R→R, $f(x)=x^2+x+3$ funksiyaning grafigini chizing.

11. Shaklda $f(x)=ax^2+bx+c$ egri chiziqning grafigi berilgan. f(x) funksiyani toping.

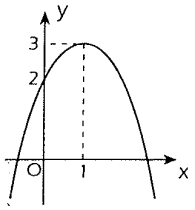


12. Shaklda $f(x)=ax^2+bx+c$ egri chiziqning grafigi berilgan. f(3) ning qiymati nechaga teng?

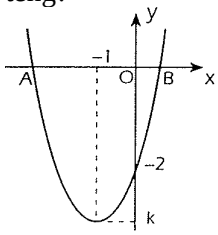


A) $-\frac{3}{2}$ B) -2 C) $-\frac{5}{2}$ D) -3 E) -4

13. Shakldagi parabolaning tenglamasini toping.



14. Shakldagi parabolada AB=6 bo`lsa, k nechaga teng?



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

15. A(0,1), B(−1,0), C(1,4) nuqtalardan o`tadigan parabolaning tenglamasini yozing.

16. $f(x)=-x^2+4x+2m-1$ funksiyaning eng katta qiymati 4 ga teng bo`lsa, m nechaga teng?

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

17. $y=x^2-3x+m^2+4m-2$ parabolaning OX o`qini kesadigan nuqtalaridan birining absissasi 2 ga teng bo`lsa, OY o`qini kesadigan nuqtaning ordinatasi nechaga teng?

A) −2 B) −1 C) 0 D) 1 E) 2

18. $f(x)=x^2+(2m-3)x-4$ funksiyaning simmetriya o`qi x=4 to`g`ri chiziq bo`lsa, m nechaga teng?

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

19. $f(x)=x^2+x+m+1$ egri chiziq x o`qini ikki nuqtada kessa, m nechaga teng bo`ladi?

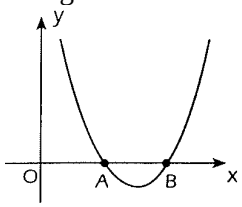
A) $m<-\frac{3}{4}$ B) $m<\frac{3}{4}$ C) $m>\frac{3}{4}$

D) $m<\frac{5}{4}$ E) $m>-\frac{5}{4}$

20. $f(x)=a^2x^2-(2a+1)x+1$ egri chiziq x o`qiga urinsa, a nechaga teng?

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

21. Shaklda $y=x^2-8x-4m-1$ funksiyaning grafigi berilgan. 3OA=2OB bo`lsa, m nechaga teng?



A) −6 B) −4 C) 2 D) 3 E) 5

22. $f(x)=-2x^2+8x-1$ bo`lsa, f(x) ning [−2,3] kesmadagi eng katta qiymati nechaga teng?

A) 3 B) 5 C) 7 D) 8 E) 9

23. $x^2-7x\le 0$ va $y=x^2-6x+5$ bo`lsa, y ning qiymatlari qaysi oraliqda bo`ladi?

A) $5<y\le 7$ B) $0\le y\le 5$ C) $-4\le y\le 12$

D) $-4\le y\le 5$ E) $5\le y\le 12$

24. $y=x^2+4mx+m-2$ parabolalar uchlarining geometrik joyi tenglamasini yozing.

Parabola bilan to`g`ri chiziq

25. $y=x^2-3x-4$ parabola bilan $y=x-4$ to`g`ri chiziq kesishgan nuqtalarining absissalari yig`indisi nechaga teng?

A) 2 B) 3 C) 4 D) 5 E) 6

26. a ning qanday qiymatida $y=x+a$ to`g`ri chiziq $y=x^2+2x+3$ egri chiziqqa urinma bo`ladi?

A) 3 B) $\frac{11}{4}$ C) $\frac{11}{2}$ D) 6 E) $\frac{13}{2}$

27. m ning qanday qiymatida $y=2$ to`g`ri chiziq $y=-x^2+2x+m$ parabolaga urinma bo`ladi?

A) -2 B) -1 C) 0 D) 1 E) 2

28. $y=x^2+2x-3$ parabolaning $y=4x-5$ to`g`ri chiziqqa parallel bo`lgan urinmasi tenglamasini yozing.

29. a ning qanday qiymatlarida $y=x^2+4$ egri chiziq va $y=2x-a$ to`g`ri chiziq ikki nuqtada kesishadi?

A) $a>3$ B) $a<3$ C) $a>-3$
D) $a<-2$ E) $a<-3$

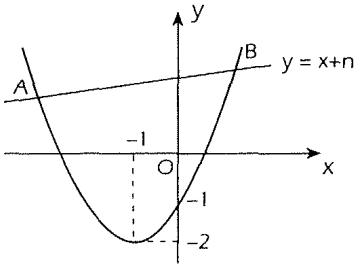
30. $y=x^2+3x+m$ parabola bilan $y=x+3$ to`g`ri chiziq A va B nuqtalarda kesishadi. AB ning o`rta nuqtasi quyidagilardan qaysi biri?

A) (0,2) B) (−1,0) C) (1,2)
D) (−1,1) E) (−1,2)

31. $y=(x-2)^2$ parabolaning $y=x-3$ to`g`ri chiziqqa eng yaqin nuqtasining ordinatasi nechaga teng?

A) $\frac{7}{4}$ B) $\frac{5}{2}$ C) $\frac{1}{2}$ D) $\frac{1}{4}$ E) $\frac{3}{8}$

32. Shakldagi parabola uchi nuqtasi $(-1,-2)$ga teng. A va B nuqtalarning absissalari yig`indisi nechaga teng?



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

Ikki parabolaning joylashishi

33. $y=-(x-1)^2+c$ parabola $y=x^2+1$ parabolaga urinma bo`lsa, c nechaga teng?

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

34. $x=y^2+2$ parabolaning grafigini chizing.

35. $x=y^2-2y-8$ parabolaning grafigini chizing.

Parabolaning ichki va tashqi qismlari

36. $\begin{cases} y \geq x^2-1 \\ y \leq x \end{cases}$ tengsizliklar sistemasini qanoatlantiradigan sohani koordinatalar sistemasida ko`rsating.

Ikkinchi darajali ikki noma`lumli tenglamalar sistemasini yechish

37. Tenglamasi $y=-x^2+x+6$ parabola bilan tenglamasi $y=-2x+2$ to`g`ri chiziqning kesishish nuqtalarini toping.

38. $\begin{cases} x+y=8 \\ x^2+y^2+xy=52 \end{cases}$ tenglamalar sistemasining yechimlari to`plamini toping.

39. $\begin{cases} x+y=20 \\ xy=64 \end{cases}$ tenglamalar sistemasining yechimlari to`plamini toping.

40. $\begin{cases} x^2+xy=10 \\ y^2+xy=15 \end{cases}$ tenglamalar sistemasining yechimlari to`plamini toping.

41. $\begin{cases} x^2+2xy-y^2=7(x-y) \\ 2x-y=5 \end{cases}$ tenglamalar sistemasini qanoatlantiradigan haqiqiy sonlar juftlarini(tenglamalar sistemasining yechimlari to`plamini) toping.

42. $\begin{cases} x^2-y^2+2x-2y=40 \\ x-y=10 \end{cases}$ sistemasni qanoatlantiradigan x va y larning yig`indisi nechaga teng?

A) 0 B) 2 C) 4 D) 6 E) 10

43. $\begin{cases} 2xy-3y-3=0 \\ y^2-4xy+15=0 \end{cases}$ tenglamalar sistemasining yechimlari to`plami nimaga teng?

A) {(1,2)} B) {(2,3)} C) {(0,3)}
D) {(2,2)} E) {(1,4)}

Kvadrat funksiya. Test−1

1. $y=-x^2+6x-8$ parabola uchining koordinatalarini toping.

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

2. $y=x^2-6x-16$ parabola uchining koordinatalari yig`indisi nechaga teng?

A) 22 B) 20 C) −20
D) −22 E) −28

3. $y=x^2-7x+12$ funksiyaning OX o`qini kesadigan nuqtalari absissalarining yig`indisi nechaga teng?

A) 7 B) 12 C) 1 D) 6 E) 3

4. $f(x)=x^2+2x-3m+3$ parabolaning OX o`qini kesadigan nuqtalardan biri A(1,0) bo`lsa, OY o`qini kesadigan nuqtaning ordinatasi nechaga teng?

A) 3 B) −3 C) −2 D) −1 E) 0

5. $y=x^2-3x+m^2+4m+6$ parabolaning x−o`qini kesadigan nuqtalardan birining absissasi 2 ga teng. Bu parabolaning y−o`qini kesadigan nuqtaning ordinatasi nechaga teng?

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

6. $y=x^2-4x+a$ parabolaning eng kichik qiymati -6 bo`lsa, a nechaga teng?
A) -1 B) -2 C) -3 D) -4 E) -6

7. $f(x)=(m+1)x^2+4x+m-2$ funksiya (1,9) nuqtadan o`tsa, bu funksiyaning simmetriya chizig`i qaysi?
A) $-\frac{4}{3}$ B) $-\frac{2}{3}$ C) $-\frac{1}{2}$ D) $\frac{1}{2}$ E) 1

8. $f(x)=-x^2+6x+k$ parabolaning eng katta qiymati 15 bo`lsa, k nechaga teng?
A) 0 B) 13 C) 9 D) 7 E) 6

9. $y=-2x^2-6mx+3$ egri chiziqning x−o`qini kesadigan nuqtalari koordinata boshidan teng uzoqlikda yotsa, m nechaga teng?
A) -3 B) 0 C) 1 D) 2 E) 6

10. $y=x^2+(1-m)x+m-1$ parabolaning OX o`qini kesadigan nuqtalari x=3 to`g`ri chiziqqa simmetrik bo`lsa, m nechaga teng?
A) 3 B) 4 C) 5 D) 6 E) 7

11. $f(x)=(m+1)x^2+(2m-3)x-2$ funksiya x=2 to`g`ri chiziqqa nisbatan simmetrik bo`lsa, m nechaga teng?
A) $\frac{1}{2}$ B) $-\frac{1}{3}$ C) -2 D) $-\frac{1}{6}$ E) 2

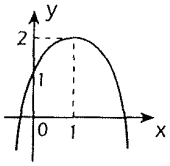
12. $f(x)=x^2-8x+a+12$ parabola uchi koordinata boshiga nisbatan 5 ga teng masofada yotsa, a nechaga teng?
A) 1 yoki 7 B) 2 yoki 4 C) 3 yoki 5
D) 4 yoki 6 E) -2 yoki 4

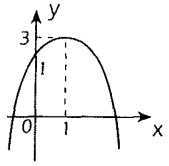
13. $y=-2x^2-ax-1$ parabola uchi x−o`qi ustida yotadi. a ning qanday qiymatida parabola uchining absissasi musbat bo`ladi?
A) $\sqrt{2}$ B) $2\sqrt{2}$ C) $-\sqrt{2}$
D) $-2\sqrt{2}$ E) -2

14. $y=2x^2-kx+4$ parabola uchi y−o`qida yotsa, k nechaga teng?
A) 4 B) 3 C) 2 D) 1 E) 0

15. $f:R\to R$ $f(x)=-x^2+6x$ funksiya uchun f(R) nimaga teng?
A) R B) (0,6) C) (0,9) D) $(-\infty,6)$ E) $(-\infty,9]$

16. $f:R\to R$ $f(x)=-2(x-1)^2+3$ funksiyaning grafigi quyidagilardan qaysi biri?

A)


B)


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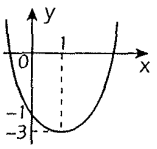
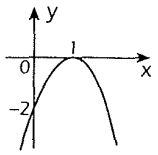
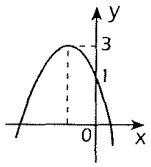
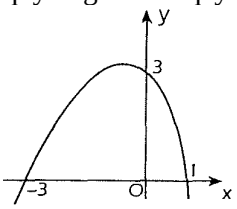
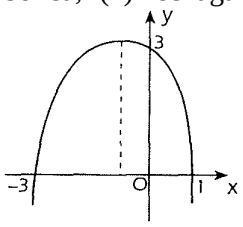


D)


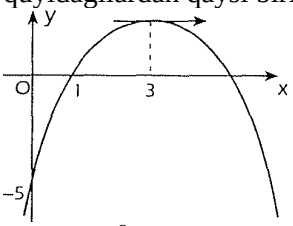
E)


17. Shakldagi parabolaning tenglamasi quyidagilardan qaysi biri?


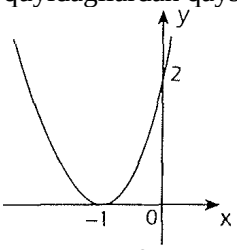
A) $y=(x+1)^2+4$ B) $y=-2(x-1)^2+4$
C) $y=(x+1)^2-4$ D) $y=-(x+1)^2+4$
E) $y=(x+1)^2-3$

18. Shakldagi parabolaning tenglamasi y=f(x) bo`lsa, f(4) nechaga teng?


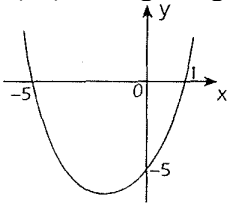
A) 21 B) -21 C) 42 D) -42 E) -14

19. Shakldagi parabolaning tenglamasi quyidagilardan qaysi biri?


A) $y=-5x^2+x-5$ B) $y=2x^2+8x-10$
C) $y=2x^2+3x-5$ D) $y=-x^2+6x-5$
E) $y=x^2+4x-5$

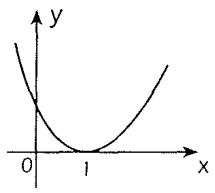
20. Shakldagi parabolaning tenglamasi quyidagilardan qaysi biri?


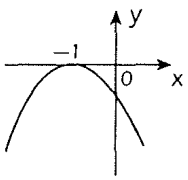
A) $y=(x+1)^2+2$ B) $y=(x+1)(x+2)$
C) $y=3(x+1)^2$ D) $y=2(x+1)^2$
E) $y=-(x+1)(x-2)$

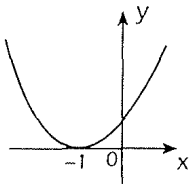
21. Shaklda $f(x)=ax^2+bx+c$ funksiyaning grafigi berilgan bo`lsa,
f(−1) nechaga teng?


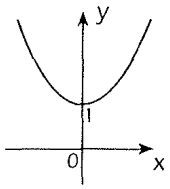
A) 5 B) -6 C) -8 D) -5 E) -12

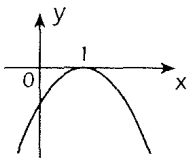
22. f:R→R f(x)=x−1
g:R→R g(x)=−x^2 bo`lsa,
(gof)(x) ning grafigi quyidagilardan qaysi biri?

A) 

B) 

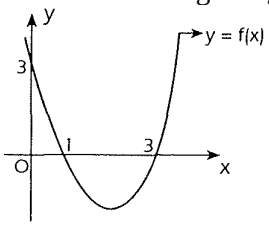
C) 

D) 

E) 

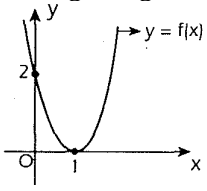
Kvadrat funksiya. Test−2

1. Grafigi berilgan y=f(x) parabola uchining ordinatasi nechaga teng?



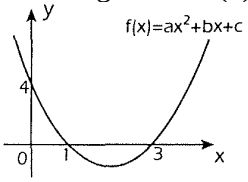
A) −3 B) $-\frac{5}{2}$ C) −2 D) −1 E) $-\frac{1}{2}$

2. Shakldagi grafik y=f(x) parabolaga tegishli. f(2) nechaga teng?



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

3. Shaklga ko`ra, f(2) nechaga teng?



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

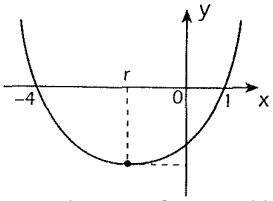
4. y−o`qini −2 da kesadigan, uchining absissasi x=1 bo`lgan va qiymatlar to`plamining eng kichik elementi −5 bo`lgan parabolaning tenglamasini toping.

A) $y=3x^2+6x-2$ B) $y=3x^2+6x+2$
C) $y=3x^2-6x-2$ D) $y=-3x^2+6x-2$
E) $y=3x^2-6x+2$

5. A(1,2), B(0,−3), C(3,18) nuqtalardan o`tadigan parabola tenglamasini toping.

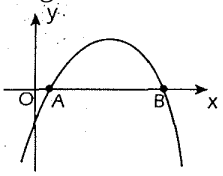
A) $y=x^2-4x-3$ B) $y=x^2-4x+3$
C) $y=x^2+4x-3$ D) $y=x^2+3x-4$
E) $y=-x^2+4x-3$

6. Shaklda $f(x)=x^2+bx+c$ funksiyaning grafigi berilgan. f(r) nechaga teng?



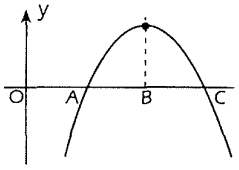
A) $-\frac{1}{4}$ B) $-\frac{3}{4}$ C) $-\frac{11}{4}$ D) $-\frac{25}{4}$ E) $-\frac{5}{4}$

7. Shakldagi parabolaning tenglamasi $f(x)=-x^2+4x+a+3$ va AB=2 bo`lsa, a nechaga teng?



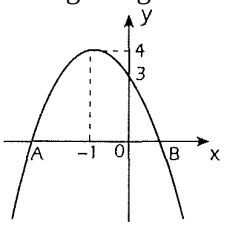
A) 6 B) 3 C) 1 D) −3 E) −6

8. Shakldagi tenglamasi $y=-2x^2+8x+m-3$ bo`lgan parabolada OA=AB=BC bo`lsa, m nechaga teng?



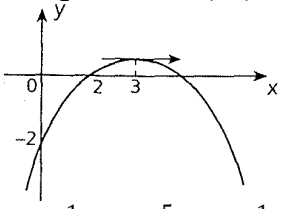
A) 4 B) 3 C) 2 D) −3 E) −5

9. Shaklda $y=ax^2+bx+c$ funksiyaning grafigi berilgan bo`lsa, parabolaning x−o`qini kesadigan A va B nuqtalarining absissalari ko`paytmasi nechaga teng?



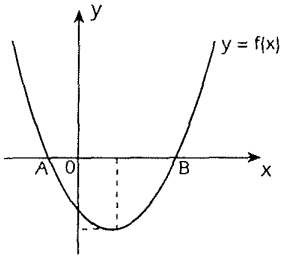
A) −2 B) −3 C) −4 D) −5 E) −6

10. Shaklda $f(x)=ax^2+bx+c$ parabola grafigi berilgan bo`lsa, f(−2) nechaga teng?



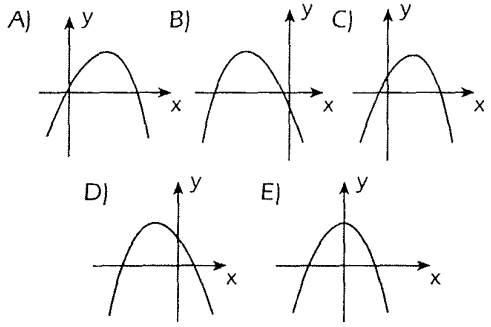
A) $-\frac{1}{8}$ B) $-\frac{5}{8}$ C) $-\frac{1}{4}$ D) $-\frac{3}{4}$ E) −6

11. Grafigi berilgan $y=f(x)=x^2-4x-m$ parabolada 3OA=OB bo`lsa, m nechaga teng?



A) 9 B) 10 C) 11 D) 12 E) 13

12. a<b<0<c bo`lsa, $y=ax^2+bx+c$ parabolaning grafigi quyidagilardan qaysi biri?



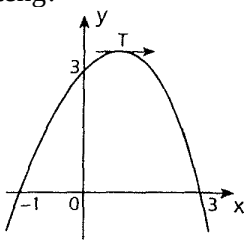
13. Simmetriya oqi x=−2 to`g`ri chiziq bo`lgan va A(1,2), B(−4,1) nuqtalardan o`tadigan parabolaning tenglamasi quyidagilardan qaysi biri?

A) $y=\frac{x^2+4x}{5}-1$ B) $y=\frac{x^2-4x}{5}-1$

C) $y=\frac{x^2+4x}{5}+1$ D) $y=\frac{x^2-4x}{5}+1$

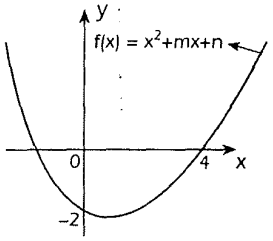
E) $y=-\frac{x^2+4x}{5}+1$

14. Shaklda berilgan $y=ax^2+bx+c$ parabola uchidagi T nuqtadan x o`qigacha masofa nechaga teng?



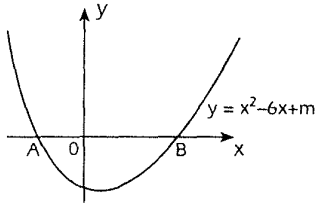
A) 4 B) 5 C) 6 D) 7 E) 8

15. Shaklga ko`ra f(1) nechaga teng?



A) $-\frac{11}{2}$ B) −5 C) $-\frac{9}{2}$ D) −4 E) $-\frac{7}{2}$

16. Shaklda OB=2OA bo`lsa, m nechaga teng?



A) −72 B) −60 C) −10 D) 12 E) 18

Kvadrat funksiya. Test−3

1. $f(x)=5x^2-10x+m$ parabola OX o`qiga urinma bo`lsa, m nechaga teng?

A) 2 B) 5 C) 6 D) 7 E) 8

2. $y=ax^2+bx+4$ parabola x o`qiga urinsa, a va b orasidagi munosabat quyidagilardan qaysi biri?

A) $b^2=16a$ B) $b^2=4a$ C) $b=\frac{a}{4}$

D) 2b=3a E) 4b=a

3. $y=5x+m$ to`g`ri chiziq $y=x^2-3x+2$ parabolaga urinsa, m nechaga teng?
A) −16 B) −14 C) 8 D) 12 E) 14

4. $f(x)=x^2+(2-m)x+3$ parabola $y=x-1$ to`g`ri chiziqqa urinsa, m nechaga teng?
A) 1 B) 2 C) 4 D) 5 E) 6

5. $y=x^2-3x-4$ parabola bilan $y=x-4$ to`g`ri chiziqning kesishish nuqtalarining absissalari yig`indisi nechaga teng?
A) 4 B) 5 C) 6 D) 7 E) 8

6. $y=x^2+3x+k$ parabola bilan $y=x+3$ to`g`ri chiziq ikki nuqtada kesishsa, k ning eng katta butun qiymati nechaga teng?
A) 4 B) 3 C) 5 D) −2 E) −6

7. $y=x^2+kx+5$ parabola bilan $y=x+1$ to`g`ri chiziq kesishmasa, k ning butun qiymatlari nechta?
A) 5 B) 6 C) 7 D) 8 E) 10

8. $y=mx+m+1$ to`g`ri chiziq $y=x^2$ parabolaga A nuqtada urinsa, A nuqtaning koordinatalari yig`indisi nechaga teng?
A) 0 B) 1 C) 2 D) 3 E) 4

9. $x^2-y+4=0$ parabola bilan $y=2x-a$ to`g`ri chiziq ikki nuqtada kesishsa, a qaysi oraliqda bo`ladi?
A) $a>3$ B) $a<3$ C) $a>-3$
D) $a<-2$ E) $a<-3$

10. $f(x)=x^2-(m-3)x+9$ parabola OX o`qini eng kamida bitta nuqtada kessa, m nimaga teng?
A) $m>-3$ B) $m<9$
C) $-3<m<9$ D) $m\le -3$, $m\ge 9$
E) $-3\le m\le 9$

11. $y=x^2+4x$ egri chiziqning $y=-2$ to`g`ri chiziqqa parallel urinmasining urinish nuqtasi qaysi?
A) (−2,−4) B) (−1,−3) C) (−2,−2)
D) (0,0) E) (−2,−5)

12. $y^2=4x$ parabola $y=x+1$ to`g`ri chiziqqa urinsa, urinish nuqtasining koordinatalari quyidagilardan qaysi biri?
A) (1,2) B) (2,1) C) (−1,2)
D) (2,−1) E) (−1,−2)

13. $y=x^2-x-3$ parabola bilan $y=3x+2$ to`g`ri chiziq A va B nuqtalarsa kesishsa, AB kesmaning uzunligi qancha?
A) $3\sqrt{2}$ B) $4\sqrt{5}$ C) $6\sqrt{10}$ D) $4\sqrt{10}$ E) $2\sqrt{6}$

14. $y=x^2+kx+4$ parabola bilan $y=2x+7$ to`g`ri chiziq (−2,3) nuqtaga nisbatan simmetrik ikki nuqtada kesishsa, k nechaga teng?
A) −3 B) 10 C) 6 D) −4 E) 3

15. $y=x^2+ax+b$ egri chiziq grafigi A(2,−1) va B(4,3) nuqtalardan o`tsa, a nechaga teng?
A) −6 B) −4 C) −2 D) 0 E) 3

16. $f(x)=5-x^2$ parabolaning [−3,1] oraliqdagi eng kichik qiymati nechaga teng?
A) −5 B) −4 C) 1 D) 5 E) 4

17. x va y haqiqiy sonlar, $x>-2$, $y=6-x^2$ bo`lsa, y ning eng katta qiymati nechaga teng?
A) 2 B) 5 C) 6 D) 8 E) 10

18. $f(x)=-2x^2-4x+1$ funksiyaning [−3,4] oraliqdagi eng kichik qiymati bilan eng katta qiymatlarining yig`indisi nechaga teng?
A) −52 B) −44 C) −2 D) 3 E) 42

19. $y=2x^2+2mx+m$ egri chiziq x o`qiga urinma bo`lsa, m^2+m+1 yig`indining eng katta qiymati nechaga teng?
A) 1 B) 2 C) 5 D) 6 E) 7

20. $y=x^2-2mx+3m-2$ parabolalar uchlarining geometrik o`rni tenglamasi quyidagilardan qaysi biri?
A) $y=-x^2+3x-2$ B) $y=x^2-2$
C) $y=3x^2+3x-2$ D) $y=-x^2-3x$ E) $y=3x^2-1$

21. $y=x^2-2mx+9$ parabola OX o`qining musbat qismiga urinsa, m nechaga teng?
A) 3 B) −3 C) 6 D) −6 E) 2

22. $y=2x^2-2(k-1)x+c$ parabolalar uchlarining absissalari musbat bo`lsa, k qaysi oraliqda bo`ladi?
A) $k>1$ B) $k>4$ C) $k<1$ D) $k>-1$ E) $k<0$

23. $\frac{3}{x^2+4x+7}$ kasrning eng katta qiymati nechaga teng?
A) 2 B) $\frac{3}{2}$ C) 1 D) $\frac{1}{3}$ E) $\frac{1}{7}$

24. $x\in R$ va $3<x<4$ bo`lsa, $A=x^2+2x+3$ ning qiymati quyidagilardan qaysi biri?
A) $6<A<8$ B) $8<A<12$
C) $12<A<16$ D) $18<A<27$
E) $30<A<42$

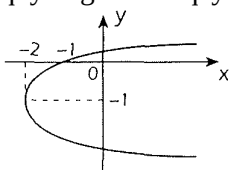
Kvadrat funksiya. Test−4

1. x,y haqiqiy sonlar va $\begin{cases} x^2-3xy=4 \\ xy+y^2=5 \end{cases}$ bo`lsa, $|x-y|$ nechaga teng?
A) $\sqrt{3}$ B) 3 C) 1 D) $\sqrt{2}$ E) 2

2. $\begin{cases} x+y=8 \\ x^2+y^2+xy=52 \end{cases}$ bo`lsa, x nechaga teng?
A) 5 B) 4 C) 3 D) 2 E) 1

3. $\begin{cases} x^2-xy=0 \\ x^2+y^2=8 \end{cases}$ sistemaning yechimlari to`plami nechta elementli?
A) 1 B) 2 C) 3 D) 4 E) 5

4. Shakldagi parabolaning tenglamasi quyidagilardan qaysi biri?

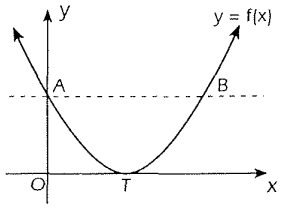


A) $y^2=2x-3y$ B) $x=2y^2+4y-1$
C) $x=y^2+2y-1$ D) $y=x^2+2x$
E) $y=2x^2+4x$

5. $y=x^2-ax-(a+1)$ va $y=-x^2-(a+1)x+a+1$ parabolalar urinsa, a nechaga teng?

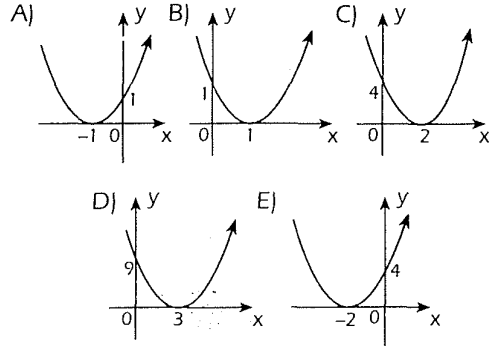
A) $-\frac{17}{16}$ B) $-\frac{16}{17}$ C) $\frac{17}{16}$ D) $-\frac{16}{17}$ E) $-\frac{15}{16}$

6. Shaklda $f(x)=x^2-2mx+2m-1$ funksiyaning grafigi berilgan. T nuqta parabolaning uchi bo`lsa, AB nechaga teng?

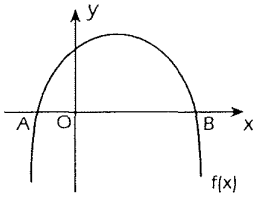


A) 1 B) 2 C) 3 D) 4 E) 5

7. $f(x)=x^2-(m+3)x+3m+1$ parabola x o`qiga urinsa, grafigi quyidagilardan qaysi biri?



8. Grafikdagi $f(x)=-x^2-(2+a)x+a+7$ parabolaning OX o`qini kesadigan nuqtalar A va B. $OA^2+OB^2=13$ bo`lsa, a nechaga teng?

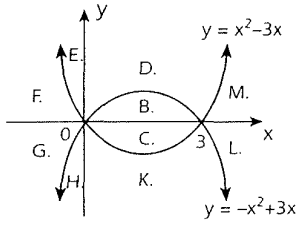


A) −1 B) −2 C) 1 D) 2 E) 3

9. $f(x)=x^2-2ax-3a$ parabolaning minimum nuqtasi koordinatalar sistemasining ikkinchi choragida bo`lsa, a ning eng katta butun qiymati nechaga teng?

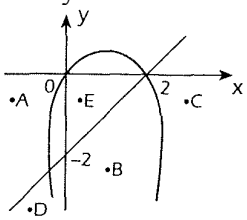
A) −3 B) −2 C) −1 D) 2 E) 3

10. Shakldagi elementlardan qaysilari $A=\{(x,y)|y\geq x^2-3x$ va $y>-x^2+3x$ va $x,y\in R\}$ to`plamga tegishli?



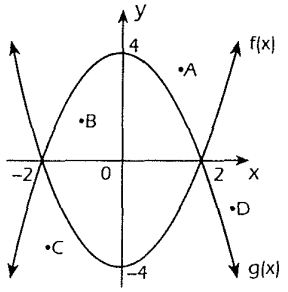
A) B va C B) D va E C) F va G
D) H va K E) M va L

11. A,B,C,D,E nuqtalaridan qaysi biri $y<-x^2+2x$ va $x-y-2<0$ shartlarni qanoatlantiradi?



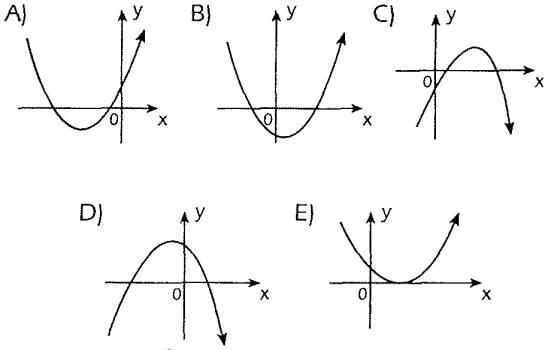
A) A B) B C) C D) D E) E

12. Shaklda grafiklari berilgan f(x) va g(x) funksiyalari uchun $\begin{cases} g(x) < -x^2+4 \\ f(x) < x^2-4 \end{cases}$ sistemani qanoatlantiradigan nuqta yoki nuqtalar quyidagilardan qaysi biri?



A) B B) A C) A va B D) C va D E) C

13. $f(x)=ax^2+bx+c$ funkiyada $ac>0$, $D>0$ va $ab<0$ bo`lsa, f(x) funksiyaning grafigi quyidagilardan qaysi biri?



14. $\begin{cases} f(x) = x^2-2x+3 \\ g(x) = ax^2-bx+1 \end{cases}$ funksiyalarning bir xil absissali nuqtalardagi urinmalari parallel bo`lsa, a+b yig`indi nechaga teng?

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

15. $R\to R$, $f(x)=ax^2+bx+c$ parabola uchi birinchi chorakda yotsa va x−o`qini kesmasa, quyidagi shartlardan qaysi biri to`g`ri?

A) $\frac{b}{2a}<0$, $b^2-4ac>0$

B) $\frac{b}{2a}>0$, $b^2-4ac<0$

C) $-\frac{b}{2a}>0$, $b^2-4ac<0$

D) $\frac{b}{2a}>0$, $\frac{b^2-4ac}{4a}<0$

E) $\frac{b}{2a}<0$, $\frac{4ac+b^2}{4a}>0$

16. Koordinata boshidan o`tadigan $y=ax^2+bx+c$ parabolaning $x=-1$ da eng katta qiymati 1 ga teng bo`lsa, a+b+c yig`indi nechaga teng?

A) −1 B) −2 C) −3 D) −4 E) 0

Kvadrat funksiya. Test−5

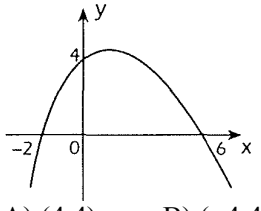
1. $y=x^2-3x-7$ parabolaning y o`qiga nisbatan simmetrigi tenglamasi quyidagilardan qaysi biri?

A) $y=-x^2+3x+7$ B) $y=x^2+3x-7$
C) $y=x^2+3x+7$ D) $y=-x^2-3x+7$
E) $y=x^2-3x+7$

2. m ning qanday qiymatida y=2 to`g`ri chiziq $y=-x^2+2x+m$ parabolaga urinma bo`ladi?

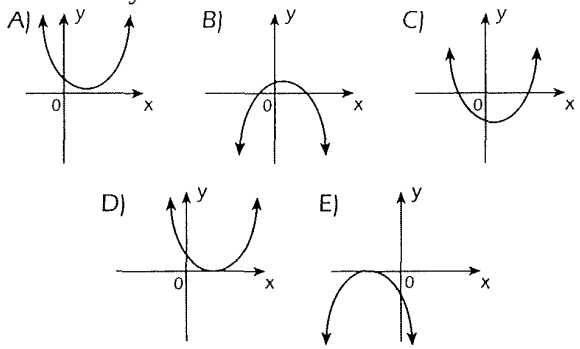
A) −2 B) −1 C) 0 D) 1 E) 2

3. Shaklda f(x) funksiyaning grafigi berilgan. Parabolaning absissasi 4 ga teng nuqtasining y=−x to`g`ri chiziqqa nisbatan simmetrigi qaysi?

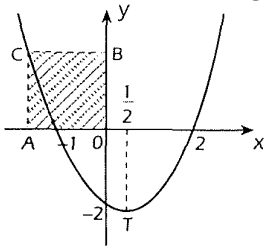


A) (4,4) B) (−4,4) C) (−4,−4)
D) (4,−4) E) (2,4)

4. $f(x)=ax^2+bx+c$ parabola uchun $a\neq0$ va $aD\leq0$ bo`lsa, f(x) ning grafigi quyidagilardan qaysi biri bo`la olmaydi?

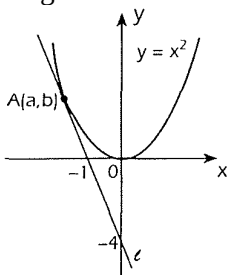


5. Shaklda T nuqta parabola uchi va AOBC kvadrat. S_{AOBC} nechaga teng?



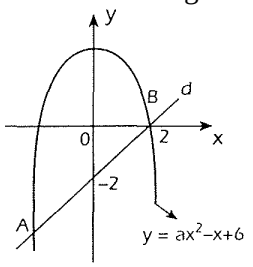
A) 2 B) 3 C) 4 D) 5 E) 6

6. Grafikda l to`g`ri chiziq $y=x^2$ parabolaga A(a,b) nuqtada urinma bo`lsa, a+b yig`indi nechaga teng?



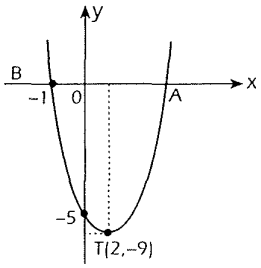
A) 2 B) 1 C) 0 D) −2 E) −4

7. Shaklda $y=ax^2-x+6$ parabola bilan d to`g`ri chiziq A va B nuqtalarda kesishadi. A nuqtaning absissasi nechaga teng?



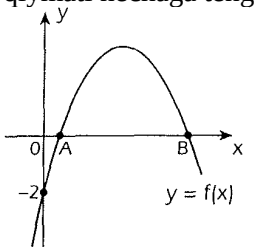
A) −8 B) −7 C) −6 D) −5 E) −4

8. R→R ga aniqlangan f funksiyaning grafigi berilgan. A,B,T nuqtalarni tutashtirib hosil qilingan uchburchakning yuzi nechaga teng?



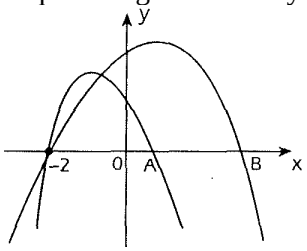
A) 18 B) 24 C) 27 D) 36 E) 34

9. Shaklda $f(x)=-x^2+ax+b$ funksiyaning grafigi berilgan. A va B nuqtalarning absissalari x_1, x_2 bo`lib, $x_1+x_2=4x_1x_2$. Funksiyaning eng katta qiymati nechaga teng?



A) 7 B) 12 C) 14 D) 16 E) 18

10. Shakldagi parabolalarning tenglamalari $y=mx^2+nx+q$ va $y=mx^2-nx+q$ bo`lsa, A va B nuqtalarning absissalari yig`indisi nechaga teng?

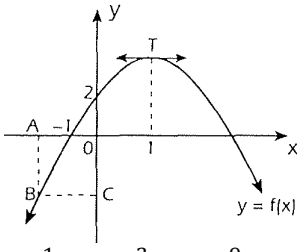


A) 3 B) 4 C) 5 D) 6 E) 8

11. Bo`yi enidan 2 marta katta bo`lgan to`g`ri to`rtburchak shaklidagi bolalar maydonchasi atrofida eni 4 m bo`lgan yo`l qilinyapti. Yo`l uchun ajratilgan yuza maydoncha yuzidan 2 marta katta bo`lsa, maydonchaning yuzi necha m^2?

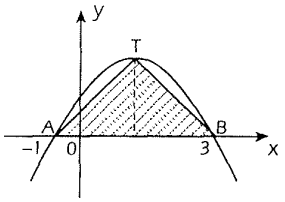
A) 32 B) 48 C) 64 D) 80 E) 128

12. Shaklda y=f(x) parabola uchi T nuqtada. ABCO kvadrat. S_{ABCO} nechaga teng?



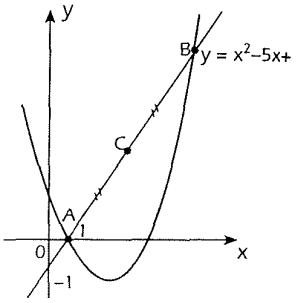
A) $\frac{1}{2}$ B) $\frac{3}{4}$ C) $\frac{9}{4}$ D) 12 E) 16

13. Grafik tenglamasi $y=a(x^2-2x-3)$ va uchi T bo`lgan parabolani ko`rsatyapti. $S_{TAB}=8$ bo`lsa, a nechaga teng?



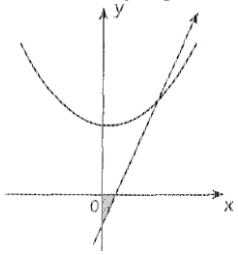
A) 1 B) −1 C) −2 D) −3 E) −4

14. Shaklda $y=x^2-5x+4$ va AC=CB bo`lsa, C nuqtaning ordinatasi nechaga teng?



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

15. Shakldagi parabolaning tenglamasi $y=x^2-2x+5$, to`g`ri chiziqning tenglamasi $y=kx-4$ bo`lsa, bo`yalgan sohaning yuzi nechaga teng?



A) 3 B) 1 C) 2 D) 6 E) 4

16. $y=x-4$ to`g`ri chiziq bilan $y=ax^2-2x$ parabolaning kesishish nuqtalaridan biri x o`qida bo`lsa, a nechaga teng?

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

17. Kombinatorika

1. Bir sinfda 15 ta qiz va 20 ta o`g`il bola o`quvchi bor. Bu sinfda jami qancha o`quvchi o`qiydi?
2. Bir maktabda 15 ta sinf va har bir sinfda 30 ta o`quvchi bor. Bu maktabda jami nechta o`quvchi bor?

Tartibli n taliklar

3. A={a,b,c}, B={1,2,3,4}, C={d,e} to`plamlari berilgan. Brinchi elementi A to`plamdan, ikkinchi B to`plamdan, uchinchi elementi C to`plamdan olingan tartibli uchtaliklarning sonini toping.

Ko`paytmani topish qoidasi

4. 4 ta ko`ylagi va 5 ta tuflisi bo`lgan kishi nechta turli usulda kiyinishi mumkin?
5. A shahardan B shaharga 2 ta turli yo`l bilan, B shahardan C shaharga esa 3 ta turli yo`l bilan borsa bo`ladi. A shahardan C shaharga borayotgan odam B shahar o`tish sharti bilan necha xil turli yo`l bilan boradi?
6. 12 kishilik sinfdan sardor va yordamchisi necha xil usul bilan tanlanadi?
7. 12 kishilik sinfning imtihon javoblari(o`tdi, o`tmadi shaklda) necha xil usulda bo`lishi mumkin?
A) 2^{12} B) 24 C) 144 D) 2^6 E) 66
8. Loto o`yinida har o`yinda 3 tadan raqam o`ynalsa, 13 ta o`yinni yutish uchun necha xil usul tanlash kerak bo`ladi?
A) 39 B) 13^3 C) 13! D) 152 E) 3^{13}
9. 4 ta xat 5 ta pochta bo`limidan junatiladi.
a) Har bir xat turli pochta bo`limidan junatilsa,
b) Xatlarning turli pochta bo`limlaridan jo`natilishi shart bo`lmasa,
Bu 4 ta xat nechta turli usulda jo`natiladi?
10. 1,2,3,4,5,6 raqamlari yordamida
a) 3 xonali nechta son yozish mumkin?
b) 3 xonali nechta juft son yozish mumkin?
c) 3 xonali 400 dan katta nechta juft son yozish mumkin?
d) nechta 3 bilan boshlanib 4 bilan tugaydigan 4 xonali son yozish mumkin?
11. 0,1,2,3,5,8 raqamlari yordamida nechta 3 xonali toq son yozish mumkin?
A) 60 B) 75 C) 90 D) 108 E) 125
12. 1,2,3,4,5,6 raqamlari yordamida nechta turli raqamli
a) uch xonali son yozish mumkin?
b) uch xonali juft son yozish mumkin?
c) uch xonali 400 dan katta son yozish mumkin?
13. 0,1,2,3,4,5,6 raqamlari yordamida nechta turli raqamli
a) uch xonali son yozish mumkin?
b) uch xonali toq son yozish mumkin?
c) uch xonali 500 dan katta son yozish mumkin?
d) uch xonali juft son yozish mumkin?
14. {0,1,2,3,4,5} to`plamning elementlari yordamida 3 xonali turli raqamli va 5 ga bo`linadigan nechta son yozish mumkin?
A) 55 B) 40 C) 36 D) 32 E) 24
15. A={2,3,4,5} va B={2,4,6} to`plamlari berilgan. Birlar xonasi A to`plamdan va o`nlar xonasi B to`plamdan olingan nechta 2 xonali turli raqamli son yozish mumkin?
A) 6 B) 8 C) 10 D) 12 E) 14

Faktorial

16. Quyidagilarni hisoblang.
a) 3!+2!
b) $\frac{9!}{7!}$
c) $\frac{10!+9!}{9!}$
d) $\frac{(n+2)!}{(n+1)!}$=15 bo`lsa, n nechaga teng?
e) $\frac{(n+1)!}{(n-1)!}$=20 bo`lsa, n nechaga teng?
f) $\frac{(n+2)!}{n!+(n+1)!}$=8 bo`lsa, n nechaga teng?

O`rinlashtirish

17. A,B,C elementlari berilgan
a) bu elementlardan bittadan olinib tuzilgan o`rinlashtirishlar nechta?
b) bu elementlardan 2 tadan olinib tuzilgan o`rinlashtirishlar nechta
c) bu elementlardan 3 tadan olinib tuzilgan o`rinlashtirishlar nechta?
18. A={1,2,3,4,5,6} to`plamning elementlaridan tuzilgan nechta turli raqamli uch xonali son yozish mumkin?
19. 5 kishi 5 ta ish o`rniga necha xil usulda tayinlanishi mumkin?
20. Quyidagilarni hisoblang.
a) A_7^2 b) A_8^3 c) A_{10}^1 d) A_5^5
21. $A_n^4=30\cdot A_n^2$ tenglamani yeching.
A) 3 B) 4 C) 5 D) 7 E) 8
22. $2\cdot A_n^2+50=A_{2n}^2$ bo`lsa, n nechaga teng?
A) 2 B) 3 C) 4 D) 5 E) 6
23. $A_n^3+A_n^1+3\cdot A_n^2=64$ bo`lsa, n nechaga teng?
A) 3 B) 4 C) 5 D) 6 E) 7
24. Laylo, Shahlo, Lola, Go`zal va Guli 5 kishilik o`rindiqqa
a) necha xil usul bilan o`tirishi mumkin?
b) Laylo bilan Lola yonma−yon bo`lish sharti bilan necha xil usulda o`tirishi mumkin?
25. 6 kishi aniq ikkitasi yonma−yon bo`lmaslik sharti bilan necha xil usulda tanlanishi mumkin?
A) 720 B) 680 C) 480
D) 240 E) 120
26. {1,3,5,7,9} to`plamdan tuzilgan uchtalik o`rinlashtirishlarning nechtasida 7 elementi bo`ladi?
A) 60 B) 48 C) 36 D) 24 E) 12

27. 4 ta sayyoh mehmonxonaning bir o`rinli 7 ta xonasiga necha xil usul bilan joylashishi mumkin?
A) 42 B) 120 C) 210
D) 420 E) 840

28. 4 ta matematika, 5 ta fizika va 3 ta kimyo kitobi bir javonga
a) necha xil usulda taxlanishi mumkin?
b) matematika kitoblari yonma−yon bo`lish sharti bilan necha xil usulda taxlanishi mumkin?
c) bir xil turdagi kitoblar yonma−yon bo`lish sharti bilan necha xil usulda taxlanishi mumkin?

29. 4 ta qiz va 4 ta o`g`il bola bir xil jinsdan yonma−yon bo`lmaslik sharti bilan stolda necha xil usulda o`tirishi mumkin?
A) 4! B) 2!·4! C) 3!·4!
D) 2·4!·4! E) 8!

30. 4 ta qiz, 3 ta o`g`il bola qizlar oldinda o`tirgan, o`g`il bolalar orqada turgan holatda necha xil usulda rasm tushishi mumkin?
A) 7! B) 4!·3! C) 72 D) 48 E) 24

Doiraviy o`rinlashtirish

31. 4 ta erkak va 4 ta ayol yumaloq stol atrofida
a) hech qanday shartga bog`liq bo`lmagan holda
b) aniq ikkita ayol yonma−yon bo`lish sharti bilan
c) barcha ayollar yonma−yon o`tirish sharti bilan
d) bir ayol bir erkak bo`lish sharti bilan necha xil usulda o`tirishi mumkin?

32. 7 ta turli kalit yumaloq va tumorsiz brelokka nechta usul bilan taqilishi mumkin?
A) 720 B) 360 C) 180 D) 120 E) 60

33. 4 ta qiz va 8 ta o`g`il bola yumaloq stol atrofida ikki qiz orasida ikki o`g`il bola bo`lish sharti bilan necha xil usulda o`tirishi mumkin?
A) 6·8! B) 9! C) 8! D) 2·8! E) 6·7!

Takrorli o`rin almashtirish

34. 3 ta ko`k, 4 ta qizil va 5 ta yashil qalam bir qatorga necha xil usulda tizilishi mumkin?

35. “MATEMATIK” so`zini harflari o`rnini almashtirib nechta 9 ta harfli “so`z” hosil qilish mumkin?
A) 405 B) 810 C) 1620
D) 3240 E) 6480

36. 32224 sonining raqamlari o`rnini almashtirib nechta 5 xonali son yozish mumkin?
A) 60 B) 50 C) 40 D) 30 E) 20

37. 7,7,6,6,3 raqamlari yordamida 7 bilan boshlanib 3 bilan tugaydigan nechta 5 xonali son yozish mumkin?
A) 2 B) 3 C) 4 D) 5 E) 6

Kombinatsiya

38. Quyidagilarni hisoblang.
a) C_7^2 b) C_{10}^3 c) C_{50}^{49}
d) C_{70}^0 e) C_{40}^1
f) $C_n^1+C_n^2+C_n^3=5n$ bo`lsa, n nechaga teng?

39. Aylanadagi 9 ta nuqtadan
a) nechta to`g`ri chiziq o`tadi?
b) nechta uchburchak yasasa bo`ladi?
c) aniq bir nuqta barcha uchburchaklarning bir uchi bo`lsa, nechta uchburchak yasasa bo`ladi?

40. 4 ta qiz va 3 ta o`g`il bola orasidan 3 kishilik bir guruh
a) hech qanday shart bo`lmasa,
b) hammasi qiz bo`lsa,
c) eng kamida bitta o`g`il bola bo`lsa,
nechta turli usulda hosil qilish mumkin?

41. 6 ta fizik, 4 ta matematik va 5 ta ximik orasidan 4 kishilik guruhni
a) hech qanday shartlarsiz
b) 2 tasi fizik va 2 tasi matematik
c) 1 tasi fizik, 1 tasi matematik va 2 tasi ximik
d) eng kamida bittasi matematik
shartlarida necha xil usulda tanlash mumkin?

42. 5 ta qiz va 4 ta o`g`il bola orasidan eng kamida ikkitasi o`g`il bola bo`lgan 4 kishilik guruhni necha xil usulda tanlash mumkin?
A) 60 B) 75 C) 81 D) 91 E) 120

43. Fazodagi uchtasi bir to`g`ri chiziqda yotmagan 6 ta nuqta orqali nechta tekislik o`tkazish mumkin?
A) 15 B) 18 C) 20 D) 24 E) 30

44. Tekislikdagi 10 ta to`g`ri chiziq eng ko`pi bilan nechta nuqtada kesishadi?
A) 20 B) 30 C) 35 D) 45 E) 90

45. 5 ta parallel to`g`ri chiziq bilan 4 ta parallel to`g`ri chiziq kesishganda nechta parallelogram hosil bo`ladi?
A) 120 B) 90 C) 60 D) 30 E) 20

46. Mehmonxonada 2 o`rinli bitta, uch o`rinli 2 ta xona bo`sh. 8 kishi bu xonalarga necha xil usul bilan joylashishi mumkin?
A) 45 B) 71 C) 128 D) 280 E) 560

47. 9 kishidan 4 tasi Qarshiga, 5 tasi Yakkaboqqa borishi kerak. Bu ikki guruh necha xil usulda shakllantirilishi mumkin?
A) 242 B) 126 C) 63 D) 36 E) 20

48. O`quvchi 10 ta savollik imtihonda 6 ta savolga javob berishi kerak. Birinchi 4 ta savoldan eng kamida 3 tasiga javob berishi shart bo`lsa, bu o`quvchi necha xil usulda savollarga javob beradi?
A) 120 B) 95 C) 80 D) 60 E) 20

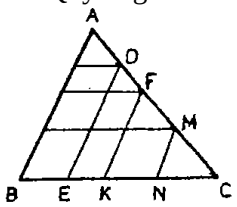
49. Maktabda 6 ta to`garakdan 2 tasi bir xil vaqtda bo`ladi. 3 ta to`garakka qatnashmoqchi bo`lgan o`quvchi necha xil usulda tanlashi mumkin?
A) 9 B) 12 C) 16 D) 20 E) 24

50. 5 tasi d_1 to`g`ri chiziqda, 3 tasi d_1 to`g`ri chiziqqa parallel d_2 to`g`ri chiziqda bo`lgan 8 ta turli nuqtadan nechta uchburchak yasash mumkin?
A) 60 B) 45 C) 30 D) 24 E) 12

51. 8 ta turli aylanalarning kesishishidan eng ko`pi bilan nechta nuqta hosil bo`ladi?
A) 28 B) 32 C) 42 D) 56 E) 6!

52. n ta tomonli ko`pburchakning diagonallari soni nechta?
A) $\frac{n(n-1)}{2}$ B) $\frac{n(n-2)}{3}$ C) $\frac{n(n-3)}{2}$
D) $\frac{n(n-3)}{3}$ E) $\frac{n(n-2)}{2}$

53. Quyidagi shaklda nechta uchburchak bor?



A) 8 B) 10 C) 12 D) 16 E) 20

54. A={1,3,5} va B={2,4,6,8} to`plamlari berilgan. Bu to`plamlardan olingan 2 ta toq va 2 ta juft sonlar bilan nechta raqamlari turli 4 xonali son yozish mumkin?
A) 72 B) 140 C) 180
D) 216 E) 432

55.a,b,c,d,e,f harflari bilan nechta biri unli ikkitasi undosh 3 ta turli harfli so`z yasash mumkin?
A) 12 B) 24 C) 48 D) 72 E) 120

56. 8 ta o`quvchi orasidan 4 kishilik guruh va bu guruh ichida bir boshliq tanlash kerak. Bitta boshliq va uchta a`zodan tashkil topgan guruh necha xil usulda tanlanadi?
A) 70 B) 140 C) 210
D) 280 E) 1680

57. 10 ta elementli to`plamning eng kamida 2 elementli qism to`plamlari nechta?
A) 1013 B) 1010 C) 1001
D) 501 E) 498

58. K={1,2,3,4,5,6,7} to`plamning nechta qism to`plamida eng kamida bitta juft son bor?
A) 96 B) 112 C) 120
D) 124 E) 144

59. A to`plamning 7 elementli qism to`plamlari soni 5 elementli qism to`plamlari soniga teng bo`lsa, bu to`plamning nechta 2 elementli qism to`plami bor?
A) 24 B) 33 C) 45 D) 66 E) 132

Binom formulasi

60. $(2x+y)^4$ ifodada qavsni oching.

61. $(x-y)^5$ ifodani yoying.

62. $(3x-2y)^{20}$ binom yoyilmasida koeffisiyentlar yig`indisi nechaga teng?
A) −1 B) 0 C) 1 D) 5 E) 5^{20}

63. $(2x^2-x+1)^4(3x-2)^5$ ko`phadning koeffisiyentlar yig`indisi nechaga teng?
A) 128 B) 80 C) 64 D) 40 E) 16

64. $(1+2x)^{10}$ binom yoyilmasida hadlarni x ning darajalarini kamayish tartibida joylashtirsak, boshidan to`rtinchi hadning koeffisiyenti nechaga teng?
A) 120 B) 210 C) 960
D) 1536 E) 15360

65. $(2x-1)^8$ yoyilmasida x^2 li hadning koeffisiyenti nechaga teng?
A) 28 B) 56 C) 96 D) 112 E) 224

66. $(2x^2+\frac{1}{x})^8$ ifoda yoyilmasidagi x li hadning koeffisiyenti nechaga teng?
A) 28 B) 56 C) 112 D) 224 E) 448

67. $(x^2-\frac{2}{x})^9$ yoyilmasidagi ozod had nechaga teng?
A) −5376 B) −84 C) 168
D) 84 E) 5376

68. $(\sqrt[3]{x}-\frac{1}{2x^2})^6$ binom yoyilmasida o`rtadagi hadning koeffisiyenti nechaga teng?
A) −10 B) $-\frac{5}{2}$ C) $-\frac{5}{8}$ D) $\frac{5}{8}$ E) $\frac{5}{2}$

69. x+y ning qaysi darajadagi yoyilmasida 4− va 12−hadlarining koeffisiyentlari bir−biriga teng bo`ladi?
A) 14 B) 15 C) 16 D) 17 E) 18

70. $(1+3x)^7=1+\ldots\ldots+35ax^3+\ldots..$ tenglikda a nechaga teng?
A) 135 B) 81 C) 54 D) 27 E) 9

71. $(\sqrt[3]{2}+\sqrt{2})^9$ binom yoyilmasida ratsional hadlar yig`indisi nechaga teng?
A) 1343 B) 1344 C) 1345
D) 1352 E) 1354

72. $(x+y+z)^8$ yoyilmasidagi $x^3y^2z^3$ hadining koeffisiyenti nechaga teng?
A) 56 B) 76 C) 280
D) 560 E) 1120

Paskal uchburchagi

73. $(x-y)^5$ yoyilmasini Paskal uchburchagi yordamida yozing.

74. $(x+y)^5$ yoyilmasida koeffisiyentlar 1,a,b,c,d,1 bo`lsa, $(x+y)^6$ yoyilmasidagi koeffisiyentlarni toping.

Kombinatorika. Test−1

1. $\frac{4(4!+3!)}{5!-4!}$ ni hisoblang.
A) 1 B) $\frac{4}{3}$ C) $\frac{3}{4}$ D) $\frac{5}{4}$ E) $\frac{4}{5}$

2. $\frac{1}{18\cdot17\cdot16\cdot15}$ ifodaning faktorial yordamida ko`rsatilishi quyidagilardan qaysi biriga teng?
A) $\frac{14!}{18!}$ B) $\frac{13!}{18!}$ C) $\frac{15!}{18!}$ D) $\frac{16!}{18!}$ E) $\frac{10!}{28!}$

3. 20!+19! ifoda bo`linmaydigan eng kichik natural son qaysi?
A) 1 B) 21 C) 23 D) 24 E) 28

4. $\frac{(3n-3)!\cdot(2n-3)!}{(3n-4)!\cdot(2n-1)!}=\frac{1}{6}$ bo`lsa, n nechaga teng?
A) 2 B) 3 C) 4 D) 5 E) 6

5. $\frac{7\cdot(n-4)!-4\cdot(n-5)!}{2\cdot(n-4)!+12\cdot(n-5)!}=3$ bo`lsa, n=?
A) 36 B) 44 C) 28 D) 64 E) 56

6. $\log_5(125!) - \log_5(123!) - \log_5 124$ ifodaning qiymati nechaga teng?
A) 6 B) 5 C) 4 D) 3 E) 2
7. $\frac{n(n-2)!+(n-2)\cdot(n-2)!}{2\cdot n!}$ ni soddalashtiring.
A) n^2 B) 2n C) n D) $\frac{1}{n}$ E) 1
8. Qarshidan Yakkaboqqa 3 ta turli yo`l, Yakkabog`dan Toshkentga 4 ta turli yo`l bor. Qarshidan Toshkentga nechta turli yo`l bilan borsa bo`ladi?
A) 5 B) 6 C) 7 D) 12 E) 3^4
9. 3 ta ko`ylagi va 4 ta tuflisi bo`lgan odam necha xil usulda kiyinishi mumkin?
A) 3^4 B) 4^3 C) 24 D) 12 E) 7
10. 10 kishilik sinfda bitta sardor va bitta sardor yordamchisi necha xil usulda tanlanishi mumkin?
A) 100 B) 99 C) 91 D) 90 E) 89
11. 11 ta a`zosi bor guruhdan 1 boshliq, 1 yordamchi, 1 kotib va 1 buxgalter necha xil usulda tanlanadi?
A) 720 B) 880 C) 990 D) 7920 E) 8820
12. Yigirma besh, ellik, yuz tiyinlik tangalar birgalikda tashlandi. Nechta turli xil holat bo`lishi mumkin?
A) 4 B) 5 C) 6 D) 7 E) 8
13. {1,2,3,4,5} to`plamning elementlari bilan nechta ikki xonali son yozish mumkin?
A) 36 B) 25 C) 18 D) 16 E) 9
14. Loto o`yinida har o`yinda 3 tadan raqam o`ynalsa, 14 ta o`yinni to`g`ri topish uchun eng kamida necha marta o`ynash kerak?
A) 14^3 B) 3^{14} C) 1480 D) 1520 E) 2397
15. A={1,2,3,4,5} to`plamning elementlari yordamida 3 xonali nechta son yozish mumkin?
A) 120 B) 60 C) 100 D) 40 E) 125
16. Turli raqamli ikki xonali sonlar nechta?
A) 80 B) 81 C) 89 D) 90 E) 99
17. A={1,2,3,4,5,6} to`plamning elementlari yordamida nechta turli raqamli uch xonali toq son yozish mumkin?
A) 216 B) 125 C) 120 D) 100 E) 60
18. A={1,2,3,4,5,6,7} to`plamning elementlari bilan har sonda har qaysi raqam bir marta qo`llanish shartida 25 bilan boshlangan nechta yetti xonali son yozish mumkin?
A) 24 B) 96 C) 120 D) 240 E) 720
19. {1,2,3,5,7,8,9} to`plamning elementlaridan har sonda elementlar bir marta qo`llanish sharti bilan nechta to`rt xonali juft son yozish mumkin?
A) 28 B) 60 C) 120 D) 240 E) 480
20. {1,2,3,4,5,6,7,8} to`plamning elementlari bilan turli elementli uch xonali va 600 dan katta nechta son yozish mumkin?
A) 42 B) 84 C) 126 D) 147 E) 210
21. 100 dan katta va 1000 dan kichik bo`lgan butun sonlarning nechtasida 8 raqami bor?
A) 250 B) 252 C) 254 D) 256 E) 258
22. a,b,c,d,e,f harflari bilan turli to`rt harfli va jarangli harf bilan boshlanadigan nechta "so`z" bor? (a,f–jarangli, b,c,d,e–jarangsiz)
A) 60 B) 120 C) 240 D) 720 E) 740
23. {0,1,2,3,4,5} to`plamning elementlari bilan nechta turli raqamli uch xonali son yozish mumkin?
A) 100 B) 96 C) 88 D) 72 E) 24
24. A={0,1,2,3,4,5} to`plamning elementlari bilan turli raqamli, 3 xonali 2 bilan tugaydigan nechta son yozish mumkin?
A) 14 B) 15 C) 16 D) 17 E) 18
25. A={0,1,2,3,4} to`plamning elementlari bilan turli raqamli 400 dan katta 3 xonali nechta son yozish mumkin?
A) 12 B) 15 C) 18 D) 24 E) 36
26. 0,1,2,4,7 raqamlari yordamida nechta turli raqamli uch xonali toq son yozish mumkin?
A) 16 B) 18 C) 20 D) 22 E) 24
27. 1,2,3,4,5 raqamlari bilan nechta 5 ga bo`linadigan uch xonali son yozish mumkin?
A) 20 B) 24 C) 25 D) 12 E) 36
28. A={1,2,3,4,5,6} to`plamning elementlari bilan nechta 3 xonali turli raqamli va 5 ga bo`linadigan son yozish mumkin?
A) 80 B) 40 C) 36 D) 32 E) 20
29. A={0,1,2,3,4,5,6} to`plamning elementlari bilan nechta 5 ga bo`linadigan uch xonali son yozish mumkin?
A) 84 B) 72 C) 60 D) 42 E) 36
30. A={0,1,2,3,4,5,6} to`plamning elementlaridan 5 ning karralisi bo`lgan, uch raqamli takrorsiz, turli nechta son yozish mumkin?
A) 36 B) 40 C) 55 D) 60 E) 120
31. {0,1,2,3,4} to`plamning elementlari yordamida nechta turli raqamli 4 xonali 3000 dan katta juft son yozish mumkin?
A) 20 B) 24 C) 30 D) 36 E) 40
32. 10 kishilik sinfning imtihon natijalari(o`tdi, o`tmadi) necha xil usulda chiqadi?
A) 10^2 B) 2^{10} C) 20 D) 12 E) 5
33. 4 ta o`quvchi turli 5 ta imtihonga necha xil usul bilan kirishi mumkin?
A) 20 B) 80 C) 120 D) 125 E) 625
34. 3 ta xat, 2 ta pochta qutisiga necha xil usulda tashlanadi?
A) 5 B) 6 C) 8 D) 9 E) 12

Kombinatorika. Test−2

1. $6\cdot A_4^2+8\cdot A_n^3=A_{2n}^3$ tenglikda n nechaga teng?
A) 8 B) 7 C) 5 D) 4 E) 3

2. $A_n^2=30$ tenglamani yeching.
A) 4 B) 5 C) 6 D) 7 E) 8

3. $A_n^4=30\cdot A_n^2$ bo`lsa, n nechaga teng?
A) 3 B) 4 C) 8 D) 10 E) 12

4. $A_n^3=5A_n^2$ tenglamani yeching.
A) 4 B) 5 C) 6 D) 7 E) 8

5. $A_n^3=2A_{n+1}^2$ tenglamani yeching.
A) 4 B) 5 C) 6 D) 7 E) 8

6. A={1,2,3,4,5,6,7} to`plamning elementlaridan 3 tasi olinib tuzilgan o`rin almashtirishlar soni nechaga teng?
A) 21 B) 120 C) 210 D) 213 E) 840

7. 4 ta rasm bir devorga bir qator qilib necha xil usulda osilishi mumkin?
A) 4! B) 2^4 C) $\frac{4!}{2}$ D) 4 E) 1

8. A={1,2,3,4,5,6} to`plamning elementlari bilan nechta turli raqamli 12 bilan boshlanadigan besh xonali son yozish mumkin?
A) 6 B) 12 C) 24 D) 36 E) 120

9. Musobaqaga 9 kishi qatnashdi. 1,2,3−o`rinlar necha xil usulda bo`linadi?
A) 404 B) 480 C) 498 D) 504 E) 720

10. A va B ham bo`lgan 6 kishi bir qatorda A va B yonma−yon bo`lish sharti bilan necha xil usulda turishlari mumkin?
A) 2·6! B) 2·4! C) 5·6!
D) 2·5! E) 6·4!

11. Ona, ota, bitta qiz va uch o`g`ildan iborat oila bir qatorga ona va ota yonma−yon bo`lmaslik sharti bilan necha xil usulda o`tirishlari mumkin?
A) 240 B) 260 C) 400 D) 480 E) 720

12. Turli 3 ta fizika, 4 ta kimyo kitoblari bir xil turdagi kitoblar yonma−yon bo`lish sharti bilan bir qatorga necha xil usulda joylshtiriladi?
A) 36 B) 72 C) 144 D) 240 E) 288

13. a,b,c,d,e,f harflari jarangli harflar yonma−yon va jarangsiz harflar yonma−yon shaklda necha xil usulda tanlanadi? (a,f−jarangli, b,c,d,e−jarangsiz)
A) 24 B) 48 C) 96 D) 120 E) 126

14. Mohinaning 4 jildlik romani, 3 jildlik ensiklopediyasi va 2 jildlik ertak kitobi bor. Bularni kitob javoniga bir turdagi kitoblar yonma−yon bo`lish sharti bilan necha xil usulda taxlash mumkin?
A) 432 B) 864 C) 1728
D) 1828 E) 3456

15. {a,b,c,d,e,f,g} to`plamning uchlik o`rin almashtirishlarining nechtasida c harfi bo`lib, f harfi uchramaydi?
A) 84 B) 72 C) 60 D) 48 E) 30

16. Yig`ilishda 6 kishi yumaloq stol atrofida necha xil usulda o`tirishi mumkin?
A) 24 B) 72 C) 120 D) 360 E) 720

17. A,B,C,D,E,F kishilar yumaloq stol atrofida E va F yonma−yon bo`lish sharti bilan necha xil usulda o`tirishi mumkin?
A) 27 B) 36 C) 42 D) 48 E) 60

18. 6 erkak va 6 ayol yumaloq stol atrofida ikki ayol orasida bir erkak bo`lish sharti bilan necha xil usulda o`tirishi mumkin?
A) 12! B) 5!5! C) 11!
D) 5!6! E) 6!2!

19. 3 ayol va 5 erkak yumaloq stol atrofida ayollar yonma−yon bo`lish sharti bilan necha xil usulda o`tirishi mumkin?
A) 8!·3! B) 5! ·3! C) 2! ·5!
D) 7! E) 7! ·5!

20. 5 ayol va 2 erkak yumaloq stol atrofida erkaklar yonma−yon kelmaslik sharti bilan necha xil usulda o`tirishi mumkin?
A) 240 B) 360 C) 480
D) 640 E) 720

21. BOBOJON so`zining harflari bilan nechta turli “so`z” yozish mumkin?
A) 300 B) 420 C) 480
D) 720 E) 5040

22. 2342532 sonining raqamlari o`rni almashtirilib yetti xonali nechta son yozish mumkin?
A) 7! B) 6! C) 420 D) 360 E) 180

23. a,a,a,b,b,c,c harflarini bir qatorga necha turli xil usul bilan tartiblash mumkin?
A) 210 B) 420 C) 720
D) 196 E) 120

24. 3134424 sonining raqamlari o`rni almashtirilib yetti xonali son yozish kerak. 2 soni o`rtada(minglar xonasida) bo`lish sharti bilan necha xil usulda bu sonni yozish mumkin?
A) 60 B) 72 C) 80 D) 90 E) 110

25. a,a,a,b,b,c,c harflarini boshi va oxirida bir xil harf bo`lish sharti bilan necha xil usulda tartiblash mumkin?
A) 10 B) 20 C) 30 D) 40 E) 50

26. 32224 sonining raqamlari o`rnini almashtirib nechta 5 xonali son yozish mumkin?
A) 60 B) 50 C) 20 D) 30 E) 40

27. m ta o`quvchining stol atrofida turli o`tirishlarining soni bir qatorda o`tirishlarining sonidan necha marta katta?
A) m B) m+1 C) m−1 D) $\frac{1}{m}$ E) $\frac{1}{m+1}$

28. {0,1,2,3} to`plamning elementlari bilan eng kamida ikki xonasi bir xil bo`lgan uch xonali nechta son yozish mumkin?
A) 12 B) 18 C) 24 D) 30 E) 48

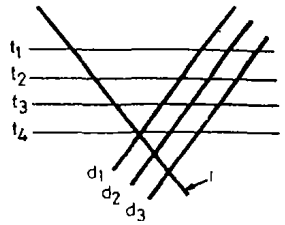
29. A={1,2,3,4}, B={4,5,6} to`plamlari berilgan. Birlar xonasi A to`plamga, o`nlar va yuzlar xonasi B to`plamga tegishli bo`lgan turli raqamli nechta uch xonali son yozish mumkin?
A) 11 B) 14 C) 18 D) 20 E) 24

30. 8 kishidan 4 tasi yumaloq stol atrofida necha xil usulda o`tirishi mumkin?
A) 70 B) 120 C) 210 D) 420 E) 1680
31. 2 ta qizil, 3 ta sariq, 4 ta ko`k munchoq toshlari bir ipga tizilyapti. Necha holatda ko`k munchoqlar bir joyda bo`ladi?
A) 40 B) 48 C) 54 D) 60 E) 64
32. 4055322 sonining raqamlari bilan 7 xonali nechta son yozish mumkin?
A) 1260 B) 1080 C) 630 D) 540 E) 450
33. 1,2,3,4,5 raqamlari bilan yozilgan, turli raqamli uch xonali sonlarning birlar xonasidagi raqamlar yig`indisi nechaga teng?
A) 150 B) 160 C) 170 D) 180 E) 190
34. a,b,c,d,e,f harflari jarangli harf bilan boshlanib, jarangsiz harf bilan tugaydigan shaklda necha xil usul bilan bir qatorga tiziladi? (a,f−jarangli, b,c,d,e−jarangsiz)
A) 240 B) 480 C) 528 D) 626 E) 720
35. 5 erkak va 4 ayol bir qatorda turishibdi. Bir ayol ikki erkak o`rtasida turish sharti bilan necha xil usulda saflanishadi?
A) 9! B) 1640 C) 1440
D) 2400 E) 2880

Kombinatorika. Test−3

1. $5C_n^2=3C_n^3$ bo`lsa, n nechaga teng?
A) 7 B) 6 C) 4 D) 3 E) 2
2. $7C_n^2= 3C_n^3$ tenglamani yeching.
A) 6 B) 7 C) 8 D) 9 E) 11
3. $C_n^{12}=C_n^8$ bo`lsa, n nechaga teng?
A) 8 B) 12 C) 16 D) 18 E) 20
4. $C_n^{n-2}+17=C_{n+2}^n$ bo`lsa, n nechaga teng?
A) 6 B) 7 C) 8 D) 9 E) 10
5. C_{80}^{78}=x bo`lsa, x nechaga teng?
A) 3180 B) 3160 C) 3150
D) 2160 E) 2860
6. $\frac{C_8^4}{C_4^0}$=x bo`lsa, x nechaga teng?
A) 70 B) 80 C) 35 D) 140 E) 280
7. C_{31}^r ning eng katta qiymatida, r ning qiymati quyidagilardan qaysi biri bo`ladi?
A) 18 B) 17 C) 16 D) 14 E) 13
8. $C_{12}^7+C_{12}^6+C_{13}^8$ yig`indi quyidagilardan qaysi biriga teng?
A) C_{15}^7 B) C_{14}^8 C) C_{15}^8 D) C_{14}^7 E) C_{14}^9
9. 10 kishilik jamoadan 7 kishilik guruhni necha xil usulda tuzish mumkin?
A) 120 B) 80 C) 70 D) 60 E) 30
10. Har qanday uchtasi bir to`g`ri chiziqda yotmaydigan 9 ta nuqtadan nechta tekislik o`tkazish mumkin?
A) 86 B) 85 C) 84 D) 74 E) 72
11. Har qanday uchtasi bir to`g`ri chiziqda yotmaydigan 16 ta nuqta berilgan. Bir uchi A nuqtada bo`lgan nechta uchburchak chizish mumkin?
A) 72 B) 99 C) 105 D) 120 E) 136
12. 8 ta sportchidan 4 kishilik jamoa tuzishmoqchi. Bu jamoaga kiradigan ikki kishi aniq bo`lsa, jamoa necha xil usulda tuziladi?
A) 15 B) 20 C) 30 D) 40 E) 50
13. A={a,b,c,d,e,f} bo`lsin. A ning uch elementli qism−to`plamlarining nechtasi a harfini o`z ichiga oladi?
A) 10 B) 20 C) 30 D) 40 E) 50
14. 18 kishilik sportchilar guruhidan 7 kishilik gandbol jamoasi tuzishmoqchi. Bu jamoaga kiradigan 4 kishi ma`lum bo`lsa, jamoani necha xil usulda tuzish mumkin?
A) 1092 B) C_{18}^7 C) 364 D) 546 E) 18!
15. 10 erkak va 7 ayol bo`lgan jamoadan tashkil qilinayotgan 5 kishilik guruhning nechtasida 2 ayol bo`ladi?
A) 2520 B) 1880 C) 1520
D) 1440 E) 1260
16. n ta tomonli qavariq ko`pburchakning diagonallari soni nechaga teng?
A) C_n^2 B) C_n^2-1 C) C_n^2-n
D) C_n^4-n E) C_n^2+n
17. 9 erkak va 5 ayoldan iborat guruhdan 6 tasi erkak bo`lgan 9 kishi necha xil usulda tanlanadi?
A) 840 B) 600 C) 580
D) 420 E) 360
18. 6 ta oshpaz, 5 ta qassob, 4 ta qandolatchi orasidan 4 kishilik guruh tuzilmoqda. Guruhda 2 ta oshpaz, 1 ta qassob, 1 ta qandolatchi bo`lishi kerak bo`lsa, bu guruh necha xil usulda tuzilishi mumkin?
A) 120 B) 180 C) 240
D) 275 E) 300
19. 10 kishilik ovchilar jamoasidan eng kamida 4 va eng ko`pi bilan 6 kishilik guruh necha xil usulda tashkil qilinadi?
A) 210 B) 252 C) 462
D) 672 E) 882
20. Bir−biriga parallel 6 ta to`g`ri chiziq bilan bir−biriga parallel 5 ta to`g`ri chiziq kesishsa, nechta parallelogram hosil bo`ladi?
A) 170 B) 160 C) 150
D) 140 E) 130
21. Parallel ikki to`g`ri chiziqning birida 6 ta, ikkinchisida 5 ta nuqta bor. Uchlari bu nuqtalarda bo`lgan nechta uchburchak chizish mumkin?
A) 30 B) 60 C) 70 D) 135 E) 165

22.



Shaklda, $t_1 \| t_2 \| t_3 \| t_4$, $d_1 \| d_2 \| d_3$. Tomonlari shakldagi to`g`ri chiziqlarda bo`lgan nechta uchburchak bor?
A) 12 B) 11 C) 10 D) 9 E) 8

23. Imtihonda 10 ta savol berilgan. O`quvchilar bu savollardan ixtiyoriy
8 tasini belgilashlari kerak. Bu ishni necha xil usulda amalga oshirish mumkin?
A) 90 B) 80 C) 70 D) 45 E) 30

24. O`quvchi imtihondagi 10 ta savoldan 8 tasiga javob berishi kerak. Agar birinchi 5 ta savoldan eng kamida 4 tasiga javob bersa, savollarga necha xil usulda javob berishi mumkin?
A) 35 B) 25 C) 15 D) 12 E) 10

25. Korxonada 5 kishilik komissiya
13 ta a`zo orasidan tanlanadi. Bu a`zolardan ikkitasi birgalida bo`lishni hohlamasa, bu ishni necha xil usulda bajarish mumkin?
A) 462 B) 660 C) 1122
D) 1320 E) 2244

26. 4 ayol va 5 erkak bo`lgan jamoadan eng ko`pi bilan bitta ayol bo`lgan 3 kishilik guruh necha xil usulda tanlanadi?
A) 10 B) 20 C) 30 D) 40 E) 50

27. 5 erkak va 6 ayol orasidan eng kamida biri ayol bo`lgan 3 kishilik guruh necha xil usulda tanlanadi?
A) 20 B) 35 C) 75 D) 90 E) 155

28. {a,b,c,d,e,f} to`plamning bir jarangli va ikki jarangsiz harfdan tuzilgan 3 elementli nechta qism−to`plami bor?(a,f−jarangli, b,c,d,e−jarangsiz)
A) 10 B) 12 C) 14 D) 16 E) 20

29. 8 o`quvchi orasidan eng kamida
2 ta o`quvchidan tashkil topgan nechta guruh tashkil qilish mumkin?
A) 28 B) 64 C) 247 D) 248 E) 256

30. n−elementli to`plamning eng kamida ikki elementli qism−to`plamlari soni nechaga teng?
A) 2^n B) 2^n-1 C) 2^n-2
D) 2^n-n-1 E) 2^n-n

31. Oralarida bir er−xotin bo`lgan 12 o`qituvchidan 4 kishilik imtihon komissiyasi tuzilmoqda. Er−xotin faqat birgalikda bu komissiyaga qo`shilsa, bu 4 kishilik komissiya necha xil usulda tashkil qilinadi?
A) 45 B) 120 C) 210
D) 240 E) 255

32. 9 ta askar bilan biri 3 kishilik, ikkinchisi 2 kishilik qarovulchilik guruhi necha xil usulda tuziladi?
A) 99 B) 630 C) 1260
D) 2520 E) 3024

33. 7 ta o`yinchoq 3 bolaga, eng kichigiga 3 ta, boshqalariga 2 tadan qilib necha xil usulda beriladi?
A) 120 B) 160 C) 180
D) 190 E) 210

34. Bir qopda 4 ta qizil, 5 ta oq shar bor. Bu qopdan 2 ta qizil, 1 ta oq shar bo`lgan uchta shar necha xil usulda tanlanadi?
A) 30 B) 15 C) 12 D) 6 E) 5

35. Mehmonxonada 3 kishilik va 2 kishilik ikki xona bor. 5 kishini aniq ikkitasi turli xonalarda joylashish sharti bilan necha xil usulda joylashtirish mumkin?
A) 6 B) 9 C) 12 D) 15 E) 18

Kombinatorika. Test−4

1. Do`kondagi 8 ta tarvuz va 6 ta qovundan bir donadan olishni hohlagan odam necha xil usulda tanlashi mumkin?
A) 48 B) 35 C) 24 D) 16 E) 14

2. Futbol klubining 11 ta asosiy, 5 ta zahira o`yinchisi bor. 8 tasi asosiy,
3 tasi zahira o`yinchisidan iborat bo`lgan jamoani necha xil usulda tuzish mumkin?
A) 400 B) 490 C) 820 D) 1500 E) 1650

3. 9 tasi ko`k, 4 tasi qizil bo`lgan 13 ta shardan eng ko`pi bilan ikkitasi qizil bo`ladigan 5 ta sharni necha xil usulda tanlash mumkin?
A) 600 B) 1008 C) 1134
D) 1280 E) 2208

4. 9 ta futbol jamoasi bir−biri bilan o`ynasa, nechta o`yin bo`ladi?
A) 32 B) 33 C) 34 D) 35 E) 36

5. 6 qiz va 4 o`g`il bola ichidan 3 o`quvchi sayohatga jo`natilyapti. Eng ko`pi bilan bitta qiz sayohatga borsa, o`quvchilar necha xil usul bilan tanlanadi?
A) 36 B) 40 C) 56 D) 60 E) 72

6. 7 elementli to`plamning eng kamida 2 elementli nechta qism−to`plami bor?
A) 120 B) 121 C) 127 D) 56 E) 57

7. $\frac{A_n^2}{C_n^3} = \frac{2}{3}$ bo`lsa, n nechaga teng?
A) 11 B) 9 C) 8 D) 7 E) 6

8. Kinozalda 8 ta bo`sh joy bor. Kinoga borgan 3 kishi bu joylarga necha xil usulda o`tirishi mumkin?
A) 42 B) 56 C) 252 D) 336 E) 448

9. 14 elementli A to`plamning 4 elementi a,b,c,d. Bu to`plamning a,b,c,d lar har doim

qatnashadigan 7 elementli nechta qism−to`plami bor?
A) 60 B) 90 C) 120 D) 180 E) 240

10. $C_6^0+C_6^1+\dots C_6^6$ soni nechaga teng?
A) 60 B) 32 C) 64 D) 128 E) 120

11. n−elementli to`plamning 3−elementli qism−to`plamlari soni 10 ta, 4−elementli qism−to`plamlari soni 5 ta bo`lsa, n+1 elementli to`plamning 4 elementli qism−to`plamalari soni nechta?
A) 50 B) 25 C) 15 D) 10 E) 5

12. A={1,2,3,4}, B={3,5,6}. Birlar xonasi B to`plamning, yuzlar va o`nlar xonasi A to`plamning elementi bo`lgan turli raqamli 3 xonali nechta son yozish mumkin?
A) 24 B) 30 C) 36 D) 42 E) 48

13. a,b,c,d,e,f harflari bilan biri jarangli, ikkitasi jarangsiz 3 turli harfli nechta "so`z" yozish mumkin? (a,f−jarangli, b,c,d,e−jarangsiz)
A) 12 B) 24 C) 48 D) 72 E) 120

14. A={1,2,3,4}, B={5,6,7}. A to`plamdan 2 ta, B to`plamdan 2 element olib turli raqamli nechta 4 to`rt xonali son yozish mimkin?
A) 18! B) 4! C) 18·4!
D) 42 E) 12·4!

15. Bir to`plamning 3 dan kam elementli qism−to`plamlari soni 37 bo`lsa, bu to`plamning nechta elementi bor?
A) 6 B) 7 C) 8 D) 9 E) 10

16. 10 ta aylananing 2 tadan kesishish nuqtalari soni nechta?
A) 15 B) 30 C) 45 D) 90 E) 100

17. A∩B=∅ va s(A)=5, s(B)=4 .
A∪B ning A dan eng kamida bir element bo`lgan 3 elementli qism−to`plamlari soni nechta?
A) 50 B) 60 C) 70 D) 80 E) 90

18. A to`plamning elementlari soni n. $C_n^5=C_n^3$ bo`lsa, A to`plamning nechta xos qism−to`plami bor?
A) 511 B) 492 C) 255
D) 149 E) 127

19. 9 kitob 3 bolaga necha xil usulda teng qilib taqsimlanadi?
A) 84 B) 7120 C) 720 D) 1440 E) 1680

20. $(2x-3)^7\cdot(x+1)^5$ ko`phad yoyilganda koeffisiyentlarining yig`indisi nechaga teng?
A) −48 B) −32 C) 0 D) 16 E) 24

21. $(2x-1)^{12}$ ifoda x ning kamayadigan darjalariga ko`ra ochilsa, o`rtadagi hadning koeffiiyenti nimaga teng?
A) $2^5\cdot C_{12}^6$ B) $2^7\cdot C_{12}^6$ C) $2^{12}\cdot C_{12}^7$
D) C_{12}^6 E) $2^6\cdot C_{12}^6$

22. $(2x+y^2)^5$ yoyilmasida x^3y^4 li hadning koeffisiyenti nimaga teng?
A) 40 B) 52 C) 80 D) 96 E) 108

23. $(2x+1)^6=64x^6+\dots+bx^2+cx+1$ bo`lsa, b nechaga teng?
A) 72 B) 60 C) 54 D) 40 E) 30

24. $(2x^2+\frac{1}{x})^9$ ning yoyilmasida ozod had nechaga teng?
A) 8 B) 1024 C) 672 D) 442 E) 4

25. $(3x+\frac{1}{9x^2})^8=ax^8+bx^5+cx^2+\dots$ yoyilmasida c koeffisiyent nechaga teng?
A) 232 B) 242 C) 252
D) 262 E) 272

26. $(2x^2-\frac{1}{2x})^6$ ifodaning yoyilmasida x^6 ning koeffisiyenti nechaga teng?
A) 120 B) 100 C) 80 D) 60 E) 40

27. $(x^3+\frac{1}{x})^{60}$ yoyilmasida boshidan 5 had nimaga teng?
A) $C_{60}^4x^{164}$ B) $C_{60}^5x^{163}$ C) $C_{60}^4x^{-164}$
D) $C_{60}^5x^{-163}$ E) C_{60}^5

28. $(1+x)^n$ ifoda x ning ortadigan darajalariga ko`ra yoyilganda 5−hadining koeffisiyenti, 9−hadining koeffisiyentiga teng bo`lsa, 2−had nimaga teng?
A) 14x B) $14x^2$ C) $91x^2$
D) 12x E) 13x

29. $(x+\frac{1}{x})^6$ ifoda yoyilganda 4−had nimaga teng bo`ladi?
A) 5 B) 6 C) $\frac{6}{x}$ D) 15x E) 20

30. $(2y^2-x)^5$ yoyilmasidagi hadlardan biri ay^mx^3 bo`lsa, m+a nechaga teng?
A) −36 B) −32 C) −14 D) 8 E) 16

31. $(\frac{x}{3}-1)^5$ ifoda yoyilmasida x^2 li had koeffisiyentining x^3 li had koeffisiyentiga nisbati nechaga teng?
A) −3 B) $-\frac{1}{3}$ C) $\frac{1}{3}$ D) 1 E) 3

32. $(x+y)^{72}$ ifoda yoyilmasida x va y ning darajalari teng bo`lgan hadining koeffisiyenti nimaga teng?
A) C_{72}^0 B) C_{72}^1 C) C_{72}^{34} D) C_{36}^0 E) C_{72}^{36}

33. $(2x^2+y)^n$ yoyilmasida koeffisiyentlar yig`indisi 81 bo`lsa, x^6 li hadning koeffisiyenti nechaga teng?
A) 32 B) 16 C) 8 D) 4 E) 2

34. $(\frac{x^2}{y^2}-\frac{y}{x})^9$ yoyilmasida ichida x va y yo`q bo`lgan had quyidagilardan qaysi biri?
A) −28 B) −65 C) 72 D) 76 E) 84

Mundarija: