3

III variant

1. Ketma-ket kelgan ikkita musbat juft sonlar kvadratlarining ayirmasi 116 ga teng. Ushbu sonlardan kichigini toping.

A) 26 B) 30 C) 28 D) 32

2. Ikki son yig'indisi 242 ga, bu sonlardan kattasini kichigiga bo'lganda bo'linma 4 ga, qoldiq esa 22 ga teng. Sonlardan kichigini toping.

A) 52 B) 44 C) 42 D) 56

3. $2016 \cdot (2017 \cdot 2018 + 1)$ ifoda quyidagilardan qaysi biriga teng?

A) $2017^3 + 1$ B) $2017^2 - 1$ C) $2017 \cdot 2018$ D) $2017^3 - 1$

4. a va b sonlar natural sonlar bo'lib, ularning eng katta umumiy bo'luvchisi 9 ga teng. Agar $4a = 5b$ tenglik bajarilsa, $a + b$ yig'indini hisoblang.

A) 81 B) 63 C) 54 D) 72

5. Birinchi quvurdan ikkinchi quvurga qaraganda ikki barobar ko'p suv oqadi. Ikkalasi birgalikda bo'sh hovuzni 12 soatda to'ldiradi. Birinchi quvur hovuzning uchdan bir qismini necha soatda to'ldiradi?

A) 12 B) 4 C) 6 D) 9

6. 1, 8, 27, 64, 125, ... ketma-ketlikning 10-hadini toping.

A) 1331 B) 512 C) 729 D) 1000

7. Hisoblang: $1 \cdot 4 + 2 \cdot 7 + 3 \cdot 10 + ... + 10 \cdot 31$.

A) 1210 B) 1200 C) 1440 D) 900

8. Hisoblang: $tg20° + 4sin20°$.

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

9. Hisoblang:
$ctg15° + ctg30° + ctg45° + ... + ctg165°$.

A) 0 B) $ctg89°$ C) -1 D) 1

10. Agar $a + b$ va $12a - b$ tub sonlar bo'lib, $\frac{a+b}{12a-b} = \frac{21}{57}$ tenglik bajarilsa, a sonini toping.

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

11. Agar $a < 0$, $b < 0$, $c > 0$ bo'lsa, $\sqrt{b^2} + |b - c| - |c - a| + b$ ifodani soddalashtiring.

A) $a - 2b$ B) $a - 2b + c$ C) $-a$ D) $a - b$

12. Agar $25^x = 12$ bo'lsa, 5^x ning qiymatini toping.

A) $2\sqrt{5}$ B) $2\sqrt{2}$ C) $3\sqrt{2}$ D) $2\sqrt{3}$

13. Agar $\sqrt{3x + 2y - 13} + \sqrt{4x - y - 10} = 0$ bo'lsa, x va y sonlarining ko'paytmasini toping.

A) 8 B) -2 C) -4 D) 6

14. Agar $x\sqrt{x} - 8\sqrt{x} = 7$ bo'lsa, $x - \sqrt{x}$ ning qiymatini toping.

A) 3 B) 6 C) 7 D) 8

15. Toq sonning o'zidan keyin keluvchi uchta toq son bilan yig'indisi 49 dan katta. Ushbu shartni qanoatlantiruvchi toq sonlardan eng kichigini toping.

A) 9 B) 15 C) 11 D) 13

16. $x^7 \cdot |x^2 + 8x + 7| < 0$ tengsizlik $[-8; 1]$ kesmada nechta butun yechimga ega?

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

17. $y = x^2$ parabola grafigini o'ngga ikki birlik, yuqoriga uch birlik siljitish (parallel ko'chirish) natijasida hosil bo'lgan parabola tenglamasini yozing.

A) $y = x^2 - 4x + 7$ B) $y = x^2 - 4x + 3$
C) $y = x^2 + 4x + 7$ D) $y = 2x^2 + 3$

18. $y = x^2 - |2x - 4|$ funksiya grafigiga $x = 3$ va $x = -3$ nuqtalarda o'tkazilgan urinmalarning kesishish nuqtasi ordinatasini toping.

A) -6 B) -5 C) -12 D) -9

19. $\int \frac{dx}{x \cdot \ln 2x}$ ni hisoblang.

A) $2\ln\ln 2x + C$ B) $\ln\ln 2x + C$

C) $\frac{1}{2}\ln\ln 2x + C$ D) $\ln 2x + C$

20. Markaziy burchagi 72° bo'lgan sektorning yuzi 15 ga teng. Sektor radiusini toping.

A) $\sqrt{\frac{75}{\pi}}$ B) $\sqrt{\frac{45}{\pi}}$ C) $\sqrt{\frac{15}{\pi}}$ D) $\sqrt{\frac{25}{\pi}}$

21. ABC to'g'ri burchakli uchburchakning katetlari $AB = 4$, $AC = 6$ va AN bissektrisa bo'lsa, ABN uchburchak yuzini toping.

A) 3 B) 4,8 C) 4 D) 4,2

22. To'g'ri burchakli uchburchakka ichki va tashqi chizilgan aylanalar radiuslari uzunliklari yig'indisi 4 ga, gipotenuza esa 6 ga teng. Uchburchakning perimetrini toping.

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

23. $ABCD$ trapetsiyaning yuzi 36 ga teng, asoslari $DC = 6$, $AB = 2$. BC tomondan E nuqta olingan bo'lib, $BE = 2EC$ bo'lsa, ADE uchburchak yuzini toping.

A) 28 B) 21 C) 18 D) 36

24. $ABCD$ parallelogrammning diagonallari O nuqtada kesishadi. $\overrightarrow{AC} = k\overrightarrow{AO}$ tenglik bajariladigan k sonining qiymatini toping.

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

25. Agar $a - b = |x| + 3$ bo'lsa, a va b lar uchun to'g'ri munosabatni aniqlang.

A) $a > b$ B) $a = b + 1$ C) $a \le b$ D) $a < b$

26. To'g'ri to'rtburchakning bir tomoni 1101 (2 lik sanoq sistema), ikkinchi tomoni 22 (8 lik sanoq sistema) ga teng. To'g'ri to'rtburchakning yuzini 16 lik sanoq sistemasida toping.

A) *DF* B) *DE* C) *F7* D) *EA*

27. A nuqtaning koordinatalari `(33; 42)` (8 lik sanoq sistema) va B nuqtaning koordinatalari `(15; 1A)` (16 lik sanoq sistema). `A` va `B` nuqtalar orasidagi eng qisqa masofani 2 lik sanoq sistemasida toping.

A) *10* B) *1010* C) *1011* D) *1001*

28. Quyida berilgan mulohazalar asosida mantiqiy ifodaning qiymatini ko'rsating: `(A and not B) or (B and C)`.

`A`="MS Word dasturida so'z belgilar ketma-ketligi bo'lib, ular bir-biridan probel, nuqta, vergul, nuqtali vergul, ikki nuqta, qavs, tire, uzun tire yoki qo'shtirnoq belgisi bilan ajralib turadi".

`B`="Plotter - chizmalarni qog'ozga chiqarish uchun xizmat qiluvchi qurilma".

`C`="HTML tili 6 ta pog'ona sarlavha qo'yish imkonini beradi".

A) *Ifodada xatolik mavjud*

B) *Yolg'on*

C) *Rost*

D) *Ayrim mulohazalarning qiymatini aniqlab bo'lmaydi*

29. Quyida HTML kodining bir qismi berilgan. Veb-brauzer oynasida ham og'ma, ham qalin shriftlarda aks etgan rim sonlarining yig'indisini hisoblang.

```
<strong><u> CXXIX </strong></u><cite><b>
LIX </cite></b> <em><u> CXIV </em>
</u><b><i> LXII </b></i><u><cite> XXIX
</u></cite><b><u> XXXIV </b></u>.
```

A) *272* B) *163* C) *143* D) *121*

30. `Paskal`. Agar quyidagi dastur qismining bajarilishi natijasida `S` ning qiymati 978 ga teng bo'lsa, takrorlanishlar sonini aniqlang:

```
S:=random(random(1)+1); For i:=-78
+random(1) +random(1) to X do S:=S+2*i;
```

A) *161* B) *84* C) *163* D) *165*