# 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*