

1-qism: Har bir topshiriq 0,9 balldan baholanadi

- Ifodani soddalashtiring: $\frac{9a^2-24a+16}{9a^2-16} \cdot \frac{9a^2+24a+16}{9a^2+16}$
 A) $\frac{9a^2-24a+16}{9a^2+16}$ B) $\frac{9a^2-16}{9a^2+16}$ C) $\frac{3a+4}{3a-4}$ D) 1
- Tenglamani eng katta ildizini toping: $2x^2 - x(\sqrt{5} + 2) = -\sqrt{5}$
 A) 1 B) $2\sqrt{5}$ C) $\sqrt{5}$ D) $0,5\sqrt{5}$
- 80 ta konfet shuncha pul turadiki, 20 so'mga shuncha dona konfet sotib olish mumkin. 100 so'mga necha dona konfet sotib olish mumkin?
 A) 50 B) 150 C) 200 D) 120
- Ifodani soddalashtiring: $\frac{c-8}{\sqrt[3]{c^2+2}\sqrt[3]{c+4}} - \frac{c+8}{\sqrt[3]{c^2-2}\sqrt[3]{c+4}}$ A) $2\sqrt[3]{c}$ B) 4 C) -4 D) $2\sqrt[3]{c} - 4$
- Tenglamani haqiqiy ildizlari sonini toping. $(3x - 1)(3|x| - 1) = 3$
 A) 1 B) 2 C) 3 D) $\emptyset$
- $\begin{cases} \frac{a-b}{b} + 1 = 2 \\ \frac{a^2-b^2}{b^2} + 2 = c \end{cases}$ bo'lsa c ni toping. A) 5 B) 4 C) 3 D) 2
- $x - 1 \geq \frac{2024}{x+1}$ tengsizlikni qanoatlantiradigan eng kichik butun x sonini toping.
 A) -44 B) -45 C) 46 D) 45
- Tenglamani yeching $(12^2 + 6^2)(14^2 + 7^2) = 35^2 \cdot x^2$
 A) ± 10 B) ± 5 C) ± 6 D) ± 7
- Uchta ketma-ket kelgan toq natural sonlarning yig'indisi quyidagilardan qaysi biriga teng bo'la olmaydi? A) 12021 B) 20103 C) 30303 D) 40005
- Arifmetik progressiyaning dastlabki to'rtta hadi yig'indisi 30 ga teng va $a_9 - a_5 = 12$. Agar $a_n = 93$ bo'lsa, n nimaga teng? A) 29 B) 30 C) 31 D) 32

2-qism: Har bir topshiriq 1,5 balldan baholanadi

- $\overline{xy0xy0}$ soni x va y ning qandaydir qiymatlarida $(\overline{xyxy} + 9\overline{xy})$ ga bo'linadi. Bo'linma nechaga teng? A) 91 B) 90 C) 110 D) 101
- $2024^{20} \cdot 2025^{24} \cdot 20^{24}$ ko'paytma nechta nol bilan tugaydi?
 A) 48 B) 72 C) 68 D) 44
- $f(1 - 2x) = 1 - 2x^2$ bo'lsa, $f\left(-\frac{1}{2}\right) + f(0) + f\left(\frac{1}{2}\right)$ yig'indini hisoblang.
 A) 0 B) $1\frac{1}{8}$ C) $1\frac{1}{4}$ D) 3
- $x^2 + ax + 2024b = 0$ va $x^2 + bx + 2024a = 0$ tenglamalarning bitta ildizi umumiy. Agar $a \neq b$ bo'lsa, umumiy ildiz nechaga teng bo'lishi mumkin?
 A) $\frac{1}{2024}$ B) $-\frac{1}{2024}$ C) -2024 D) 2024
- O'tkir burchakli ABC uchburchakning balandliklari H nuqtada kesishadi. Agar $\sqrt{3}AB = CH$ ekani ma'lum bo'lsa, ACB burchakni toping.
 A) 45° B) 75° C) 30° D) 60°



16. $A(-1; -30)$ nuqtadan $y = 3(x^2 - 6x)$ parabola uchigacha bo'lgan masofani toping.
Найдите расстояние от точки $A(-1; -30)$ до вершины параболы $y = 3(x^2 - 6x)$.
A) $\sqrt{22}$ B) $\sqrt{30}$ C) 4 D) 5
17. Uchburchakning ikkita tomoni 15 va 13 ga teng, uchinchi tomoniga tushirilgan mediana esa 7 ga teng bo'lsa, berilgan uchburchak yuzini toping. A) 80 B) 72 C) 65 D) 84
18. $\sqrt{-x} + \sqrt{12 - x - x^2} \geq 3$ tengsizlikning butun sonlardan iborat yechimlar sonini toping. A) 5 B) 3 C) 2 D) 4
19. Gipotenuzasi 8 ga, gipotenuzaga tushirilgan balandligi $1\frac{1}{16}$ ga teng bo'lgan to'g'ri burchakli uchburchak perimetrini toping. A) 18 B) $18\frac{1}{8}$ C) 17 D) $17\frac{7}{8}$
20. Agar Алишер 3 kun, Anvar esa 5 kun ishlasa ishning 36%i bajariladi. Agar Alisher 5 kun, Anvar esa 3 kun ishlasa ishning 46%i bajariladi. Alisher va Anvar birgalikda 4 kun ishlasa ishning qanday qismi bajariladi? A) 39% B) 38% C) 40% D) 41%

3-qism: Har bir topshiriq 2,6 balldan baholanadi

21. x va y sonlari $x(1 + y) = y(1 - x) = 1$ tenglikni qanoatlantiradi.
 $(x - x^2)(y + y^2)(x + y)$ ifodaning qiymatini toping
22. $[2u] - \{u\} = 20,24$ tenglamaning ildizlari yig'indisini toping, bunda $[u]$ – u sonining butun qismi, $\{u\}$ – u sonining kasr qismi.
23. Perimetri 36 ga va yuzi 54 ga teng bo'lgan to'g'ri to'rtburchakning diagonallari orasidagi o'tkir burchakni toping.
24. a, b, c – turli raqamlar, $\overline{abbc}$ – to'rtxonal son va $\overline{abbc} = (9c + 2)^2$ tenglik o'rinli bo'lsa, $a + b + c$ ni toping.
25. $z + \sqrt{z + \frac{1}{2}} + \sqrt{z + \frac{1}{4}} = 2025$ tenglamani yeching.
26. ABC uchburchakning AQ va BP bissektrisalari O nuqtada kesishadi ($P \in AC, Q \in BC$).
Agar $\angle ACB = 50^\circ$ va $AP + OP = AB$ bo'lsa, $\angle ABC$ ni toping.
27. a, b, c, d – haqiqiy sonlar $\frac{a}{b+c+d} + \frac{b}{c+d+a} + \frac{c}{d+a+b} + \frac{d}{a+b+c} = 1$ tenglikni qanoatlantirsa,
 $\frac{a^2}{b+c+d} + \frac{b^2}{c+d+a} + \frac{c^2}{d+a+b} + \frac{d^2}{a+b+c}$ ni toping.
28. $ABCD$ qavariq to'rtburchakda $\angle ABC = \angle ADC = 90^\circ$. E, F nuqtalar mos ravishda AC va BD diagonallarning o'rtalari. $\angle BFE$ burchakni toping.
29. $\frac{x^2 - 2px + p^2 + p - 12}{x} = 0$ tenglama yagona yechimga ega bo'ladigan p parametrning qiymatlari yig'indisini toping.
30. To'rt nafar o'g'il bola va to'rt nafar qiz bolani ketma-ket joylashtirilgan 8 ta stulda o'tirishlari kerak. Bunda o'g'il bolalar juft o'rindagi, qiz bolalar esa toq o'rindagi stullarga o'tiradi. Buni necha usulda amalga oshirish mumkin?

