

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

- Ifodani soddalashtiring: $\frac{1-8b}{\sqrt{2}+4b} - \frac{1-8b}{\sqrt{2}-4b}$ A) $\sqrt{2}$ B) $4b$ C) $-4b$ D) $\sqrt{2} - 4b$
- $A(m; n)$ nuqta $y + 1 = 2x^2 - 4x$ parabola uchi bo'lsa, $m - n$ ayirmani toping.
A) 1 B) 2 C) 3 D) 4
- Hisoblang: $tg \frac{2\pi}{3} \cdot \sin\left(-\frac{3\pi}{4}\right) \cdot \cos \frac{\pi}{6}$ A) $-\frac{3\sqrt{2}}{4}$ B) $-\frac{\sqrt{6}}{4}$ C) $\frac{\sqrt{6}}{4}$ D) $\frac{3\sqrt{2}}{4}$
- Tengsizlikni yeching: $5x - 20 \leq x^2 \leq 8x$
A) $[0; 10]$ B) $[0; 8]$ C) $[0; 2] \cup [8; 10]$ D) $[0; 1] \cup [8; 10]$
- 9 ta avtobus va 12 ta tramvay 966 nafar yo'lovchini tashiydi. 4 ta avtobus va 17 ta tramvay esa 931 nafar yo'lovchi tashiydi. Bitta avtobus va bitta tramvayga sig'adigan yo'lovchilar soni bir-biridan qancha farq qiladi? A) 6 B) 5 C) 7 D) 8
- $y = \frac{12}{\sin x + 5}$ funksiyaning qiymatlari sohasini toping
A) $[0; 2]$ B) $[2; 3]$ C) $[2; 2,4]$ D) $[2,4; 3]$
- Geometrik progressiyaning birinchi, uchinchi va o'n birinchi hadlari ko'paytmasi 8 ga teng bo'lsa, progressiyaning ikkinchi va sakkizinchi hadlari ko'paytmasini toping.
A) 16 B) 2 C) 4 D) 8
- $tg \alpha = \sqrt{11}$ bo'lsa, $\sin 2\alpha$ ni toping. A) $\frac{\sqrt{11}}{12}$ B) $\frac{\sqrt{11}}{4}$ C) $\frac{\sqrt{11}}{11}$ D) $\frac{\sqrt{11}}{6}$
- Markazi O nuqtada bo'lgan aylananing AB va AC vatarlar o'zaro perpendikulyar. Agar AOC burchak 100° bo'lsa, AOB burchakni toping.
A) 80° B) 100° C) 50° D) 90°
- Ifodani soddalashtiring: $\frac{\cos 2\alpha}{\sin \alpha \cos \alpha + \sin^2 \alpha} + 1$ A) $tg \alpha$ B) $ctg \alpha$ C) $\cos \alpha$ D) $\sin \alpha$

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

- $\frac{\sqrt{\sqrt{3}-\sqrt{x-4}}}{\sqrt{8-x}} > 0$ tengsizlikning butun yechimlari o'rta arifmetigini toping.
A) 4,5 B) 5 C) 5,5 D) 6
- ABC uchburchakning AB tomoniga parallel to'g'ri chiziq AC va BC tomonlarni mos ravishda K va N nuqtalarda kesib o'tadi. Agar $\triangle KCN$ uchburchak yuzi $\triangle AKNB$ trapetsiya yuzidan ikki marta katta bo'lsa, $AK : CK$ nisbatni toping.
A) $(2 - \sqrt{2}) : \sqrt{2}$ B) $(2 - \sqrt{3}) : \sqrt{2}$ C) $(\sqrt{3} - 1) : 1$ D) $(\sqrt{3} - \sqrt{2}) : \sqrt{2}$
- Agar $(a - b)^2 + (b - c)^2 + (c - a)^2 = 6$ va $(a + b)^2 + (b + c)^2 + (c + a)^2 = 18$ bo'lsa, $(a + b)(b + c) + (b + c)(c + a) + (c + a)(a + b)$ ni toping.
A) 15 B) 24 C) 12 D) 20
- Arifmetik progressiyada $a_1 + a_7 = 12$, $a_3 \cdot a_5 = 28$ bo'lsa, $a_3^2 + a_5^2$ yig'indini toping.
A) 56 B) 116 C) 92 D) 88
- $x_1 = p + 2q$, $x_2 = 4p + 7q$ ($p \neq 0$) sonlar $x^2 + px + q = 0$ tenglama ildizlari bo'lsa, $p + q$ yig'indini toping. A) -1 B) -2 C) 2 D) 3



16. Burchaklaridan biri 120° , yuzi esa $\sqrt{3}$ ga teng bo'lgan tengyonli uchburchakka tashqi chizilgan aylana radiusini toping. A) $\frac{1}{\sqrt{3}}$ B) 1 C) 2 D) $\sqrt{3}$
17. Ikki sonni bir biriga bo'lganda bo'linma ham, qoldiq ham 4 ga teng. Bo'linuvchi va bo'luvchining ayirmasiga, ularning o'rta arifmetigini, bo'linmani va qoldiqni qo'shsak 47 hosil bo'ladi. Bo'linuvchini toping. A) 28 B) 32 C) 24 D) 26
18. $f(x)$ funksiya uchun $f(0) \cdot (f(x) + 2) = 4x - 1$ tenglik o'rinli bo'lsa, $f(-1)$ ni toping. A) 2 B) -1 C) -5 D) 3
19. $1 \cdot 2 \cdot 3$; $2 \cdot 3 \cdot 4$; $3 \cdot 4 \cdot 5$; $4 \cdot 5 \cdot 6$; ...; $98 \cdot 99 \cdot 100$ ko'paytmalardan nechitasi 12 ga bo'linadi? A) 72 B) 73 C) 74 D) 75
20. Tenglamaning haqiqiy ildizlari sonini toping. $(x - 1)|x| = |x| + 1$
A) 1 B) 2 C) 3 D) $\emptyset$

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

21. a, b, c musbat sonlar $ab = 6$ va $bc = 15$ tengliklarni qanoatlantiradi. $a + b + 2c$ ifodaning eng kichik qiymatini toping.
22. Teng yonli trapetsiyaga ichki chizilgan aylana radiusi 3 ga teng. Agar trapetsiyaning asoslaridan biri balandligidan 2 marta uzun bo'lsa, trapetsiya yuzini toping.
23. $[2u] + 2\{u\} = 20,24$ tenglamaning ildizlari yig'indisini toping, bunda $[u]$ – u sonining butun qismi, $\{u\}$ – u sonining kasr qismi.
24. x va y sonlari $x(1 - y) = 2y(x + 1) = 2$ tenglikni qanoatlantiradi.
 $(x + x^2)(y - y^2)(x + y)$ ifodaning qiymatini toping
25. ABCD qavariq to'rtburchakning AC diagonalini o'rtasidan barcha tomonlargacha masofalar bir xil 4,8 ga teng. To'rtburchakning BD diagonalini 12 ga teng bo'lsa, to'rtburchak yuzini toping.
26. $\frac{x^2 - 2px + p^2 + 8p + 8}{x - 1} = 0$ tenglama yagona yechimga ega bo'ladigan p parametrning qiymatlari yig'indisini toping.
27. $\frac{35 + 2n}{3n + 1}$ ifoda butun son bo'ladigan barcha n natural sonlar nechta?
28. $\begin{cases} 2x^2 + 3y = -8,5 \\ z^2 + 4x = -1 \\ y^2 + 2z = 7 \end{cases}$ tenglamalar sistemasidan $2x + 3y + 4z$ ni toping.
29. Yuzduzchalarni raqamlarga almashtirganda $**253*$ ko'rinishdagi nechta son 72 ga karrali bo'ladi?
30. To'g'ri burchakli uchburchakning to'g'ri burchagidan chiquvchi balandlik 6 ga, katetlarning gipotenuzadagi proyeksiyalarining farqi esa 5 ga teng. Berilgan uchburchak yuzini toping.

