

1. Hisoblang: $\left(\frac{3}{2-\frac{7}{5}} + \frac{\frac{7}{3}-1}{4}\right) : \frac{4}{9}$

- A) 12 B) 10 C) $\frac{17}{3}$ D) $\frac{13}{2}$

2. $\sqrt{\frac{9}{25} - \frac{36}{35} + \frac{36}{49}}$ ning qiymatini toping.

- A) $\frac{11}{35}$ B) $\frac{9}{35}$ C) $\frac{8}{35}$ D) $\frac{7}{35}$

3. $\overline{x5y}$ uch xonali son 45 ga qoldiqsiz bo`linsa,  $x$  qabul qilishi mumkin bo`lgan raqamlar yig`indisini toping.

- A) 4 B) 6 C) 12 D) 14

4. $4^{n+2} \cdot 6^{4-n}$ ko`paytmaning natural bo`luvchilari soni 24 ga teng bo`lsa,  $n$  nechaga teng bo`ladi?

- A) 7 B) 5 C) 4 D) 3

5. Agar $f'(1) = 0$ va $f(x) = x^2 + 2ax$ bo`lsa, a ni toping.

- A) 5 B) 2 C) 1 D) -1

6. Qandaydir sonni 2025 ga bo`lganda, qoldiq 2024 ga teng bo`lsa, shu sonni 5 ga bo`lgandagi qoldiqni toping.

- A) 1 B) 2 C) 3 D) 4

7. $2025x^{2024} - 2024x^{1012} + 2023 = 0$ tenglama ildizlari yig`indisini toping.

- A) tenglama yechimga ega emas B) 2024
C) 2025 D) 2023

8. Agar a, b, c lar bir-biridan farqli raqamlar, $4a + 3b - c = 43$ va $b + 5c = 17$ bo`lsa,

$\overline{abc} + \overline{bca} + \overline{cab}$ uch xonali sonlar yig`indisini toping.

- A) 1515 B) 1665 C) 1897 D) 1960

9. Hisoblang: $\log_4 5 \cdot \log_5 6 \cdot \log_6 64$

- A) 9 B) 6 C) 3 D) 2

10. Yigindining oxirgi raqamini toping:

$$2024^{2025} + 2025^{2024}$$

- A) 9 B) 7 C) 5 D) 4

11. Quyidagi irratsional sonlardan qaysi birining

taqribiy qiymati ma`lum bo`lsa, $\sqrt{224}$ ning taqribiy qiymatini hisoblash mumkin?

- A) $\sqrt{6}$ B) $\sqrt{14}$ C) $\sqrt{15}$ D) $\sqrt{17}$

12. $3^x = 100$ bo`lsa, $|x - 3| + |x - 6|$ ni soddalashtiring.

- A) $2x - 9$ B) 3 C) $9 - 2x$ D) -3

13. Hisoblang: $\sqrt{5} - \frac{1}{\sqrt{5} + \frac{2}{\sqrt{5} - \frac{3}{\sqrt{5}}}}$

- A) 1 B) $\frac{3}{\sqrt{10}}$ C) $\frac{9\sqrt{5}}{10}$ D) $2\sqrt{5}$

14. Maxrajni irratsionallikdan qutqaring: $\frac{30}{6 + \sqrt[3]{36} + \sqrt[3]{6}}$

- A) $\sqrt[3]{36} - \sqrt[3]{6}$ B) $6 + \sqrt[3]{36}$

- C) $\sqrt[3]{36} + \sqrt[3]{6}$ D) $6 - \sqrt[3]{36}$

15. Agar $x = \frac{\pi}{22}$ bo`lsa, $\frac{\sin 4x \cdot \cos 3x + \cos 4x \cdot \sin 3x}{\cos 5x \cdot \cos x + \sin 5x \cdot \sin x}$ ni soddalashtiring.

- A) $\cos 5x$ B) $\operatorname{tg} 5x$ C) 1 D) -1

16. $(x^2 - 9x + 20)\lg(10 - x^2) = 0$ tenglamaning ildizlari ko`paytmasini toping.

- A) -9 B) -36 C) -180 D) 72

17. Agar $x^2 + \frac{1}{x^2} = 34$ bo`lsa, $x^3 + \frac{1}{x^3}$ ning musbat qiymatini toping.

- A) 196 B) 198 C) 200 D) 204

18. Agar $x^2 + y^2 - 2x - 2\sqrt{2}y + 3 = 0$ bo`lsa, $x + y^2$ ning qiymatini toping.

- A) 6 B) 5 C) 4 D) 3

19. Arifmetik progressiyada: $a_n = 4n + 1$ bo`lsa, uning dastlabki o`nta hadi yig`indisini toping.

- A) 276 B) 246 C) 240 D) 230

20. $x^2 + (a + 2)x + b - 4 = 0$ tenglamaning ildizlari -2 va 3 bo`lsa,

$(x + 4)^2 + a(x + 4) + 2b - 6 = 0$ tenglamaning ildizlari yig`indisini toping.

- A) -2 B) -4 C) -5 D) -7

21. Hisoblang: $9 + 99 + 999 + 9999 + \dots + \underbrace{9999 \dots 9}_{x \text{ ta}}$

$$\begin{array}{ll} \text{A)} \frac{10^{x+1}-9x-10}{9} & \text{B)} \frac{10^{x+3}-9x-10}{10} \\ \text{C)} \frac{10^{x+2}-10x+9}{9} & \text{D)} \frac{10^x-10x-9}{10} \end{array}$$

22. Tengsizlikni yeching: $\frac{(x+3)^2(x-5)(x+2)}{(x+4)(x-6)} < 0$

$$\begin{array}{ll} \text{A)} (-4;-2) \cup (5;6) & \text{B)} (-4;-3) \cup (-3;-2) \cup (5;6) \\ \text{C)} (-4;-3) \cup (-2;5) & \text{D)} (-\infty;-4) \cup (-3;-2) \cup (5;6) \end{array}$$

23. Geometrik progressiyada: $b_5 = 2$ va $b_8 = 16$ bo'lsa, uning n chi hadini toping.

$$\text{A)} 2^{n-2} \quad \text{B)} 2^{3-n} \quad \text{C)} 2^{n-4} \quad \text{D)} 2^{n-1}$$

24. Agar $\frac{64}{31} + \frac{71}{32} - \frac{27}{33} = a$ bo'lsa, $\frac{2}{31} + \frac{7}{32} + \frac{6}{33}$ ni a orqali ifodalang.

$$\text{A)} 3 - a \quad \text{B)} 5 - a \quad \text{C)} a - 5 \quad \text{D)} a - 3$$

25. Sarvar ota hozir 40 yoshda, katta o'g'li 14 yoshda, qizi 9 yoshda, kichik o'g'li esa 7 yoshda. Necha yildan so'ng otaning yoshi farzandlari yoshlari yig'indisiga teng bo'ladi?

$$\text{A)} 10 \quad \text{B)} 7 \quad \text{C)} 6 \quad \text{D)} 5$$

26. Agar $\frac{a}{b} = \frac{c}{d} = \frac{2}{5}$ va $\frac{3a+2c}{6b+xd} = \frac{1}{5}$ bo'lsa, x ni toping.

$$\text{A)} 2 \quad \text{B)} 3 \quad \text{C)} 4 \quad \text{D)} 6$$

27. Tenglamani yeching: $2\sin^2 x - 5\sin x + 2 = 0$

$$\begin{array}{ll} \text{A)} (-1)^k \frac{\pi}{4} + 2\pi k & \text{B)} (-1)^k \frac{\pi}{6} + \pi k \\ \text{C)} (-1)^k \frac{3\pi}{4} + 2\pi k & \text{D)} (-1)^k \frac{\pi}{3} + \pi k \end{array}$$

28. Agar $0 < x < \frac{\pi}{2}$ va $\frac{1}{\cos x} = \frac{3}{\sin x}$ bo'lsa, $\cos x$ ning qiymatini toping.

$$\text{A)} \frac{1}{\sqrt{10}} \quad \text{B)} \frac{1}{3} \quad \text{C)} \frac{3}{\sqrt{10}} \quad \text{D)} \frac{3}{10}$$

29. Agar $f(x) = \ln(\lg x)$ bo'lsa, $f'(10)$ ni hisoblang.

$$\text{A)} 1 \quad \text{B)} \frac{1}{10 \cdot \ln 10} \quad \text{C)} 10 \cdot \ln 10 \quad \text{D)} \ln 10$$

30. Tenglamani yeching:

$$\log_5(2 + \log_3(2x + 1)) = 1$$

$$\text{A)} 7 \quad \text{B)} 10 \quad \text{C)} 13 \quad \text{D)} 15$$

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