

**Takrorlash testi**

1. Soddalashtiring.

$$\frac{\cos 8\alpha + \cos 9\alpha + \cos 10\alpha + \cos 11\alpha + \cos 12\alpha}{\sin 8\alpha + \sin 9\alpha + \sin 10\alpha + \sin 11\alpha + \sin 12\alpha}$$

- A)  $\sin 10\alpha$  B)  $\operatorname{tg} 10\alpha$  C)  $\operatorname{tg} 5\alpha$   
D)  $\sin 10\alpha$  E)  $\operatorname{Ctg} 10\alpha$

2.  $\frac{25\sqrt[4]{2} + 2\sqrt{5}}{\sqrt{250} + 5\sqrt[4]{8}} - \sqrt{\frac{\sqrt{2}}{5} + \frac{5}{\sqrt{2}}} + 2 = ?$

- A) 1 B) 2  
C)  $\frac{1}{2}$  D) -2  
E) -1

3.  $\sqrt{\log_a b + \log_b a} + 2 \cdot \log_{ab} a \cdot \sqrt{\log_a^3 b} = ?$

- ( $a > b > 1$ )  
A) 1 B)  $\log_a b$   
C)  $\log_b a$  D)  $\log_a^2 b$   
E)  $\sqrt{\log_a b}$

4. Tengsizlikni yeching.

$$|x-1| - |x-2| + |x-3| - |x-4| + |x-5| \leq 3$$

- A) [3;6] B) (0;3] C) [0;6]  
D) [0;1)U(2;6] E) [0;3]

5. Tengsizlikni yeching.

$$\sqrt{x^2 - 8x + 12} \geq 4 - x$$

- A)  $(-\infty; 2] \cup [4; \infty)$   
B)  $(-\infty; 2] \cup [6; \infty)$   
C) [6;  $\infty$ )  
D) (0;6)U(6;  $\infty$ )  
E)  $(-\infty; 0) \cup (0; 6) \cup (6; \infty)$

6. Tenglamani yechimlari yig'indisini toping.

$$x^{\log_3 x} = 3^{2\log_3^2 x - 4\log_3 x + 3}$$

- A) 25 B) 27 C) 3 D) 30 E) 24

7. O'zidan oldingi barcha toq natural sonlar yig'indisining to'qqizdan bir qismiga teng bo'lgan natural sonni toping.

- A) 18 B) 24 C) 36 D) 48 E) 60

8. Quyidagi tenglama nechta haqiqiy yechimga ega.

$$x^3 - \left| \frac{x-1}{x+1} \right| = 0$$

- A) 1 B) 2 C) 3 D) 4 E) yechimga ega emas

9. Tengsizlikni yeching.

$$\log_x 2 \cdot \log_x 2 > \frac{1}{\log_2 x - 6}$$

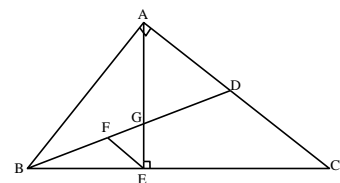
- A) (2;3)U(3;4)U(6;  $\infty$ )  
B) (0;1)U(4;8)U(16;64)  
C) (0;1)U(4;8)U(16;32)  
D) (2;3)U(4;8)U(16;64)  
E) (0;1)U(2;3)U(16;32)

10. Tengsizlikni yeching.

$$\frac{x^3 - 6x^2 + 5x + 12}{x^4 - 3x^3 + 3x^2 - 3x + 2} > 0$$

- A) (-1;3)U(3;4)U(4;5)  
B) (-1;1)U(3;4)U(5;  $\infty$ )  
C) (-1;1)U(2;3)U(4;  $\infty$ )  
D)  $(-\infty; -1) \cup (1; 2) \cup (3; 4)$   
E)  $\emptyset$

11.



Yuqoridagi chizmada  $\angle A = 90^\circ$ ,  $AB = AC$ . G uchburchakning og'irlik markazi.  $GF = FB$  va  $EF = 2$  bo'lsa,  $AE = ?$

- A)  $\frac{\sqrt{10}}{10}$  B)  $\frac{\sqrt{5}}{5}$   
C)  $\frac{4\sqrt{5}}{5}$  D)  $\frac{6\sqrt{10}}{5}$   
E)  $\frac{\sqrt{10}}{5}$

12. Tenglamani yeching.

$$\cos 2x - 5 \sin x - 3 = 0$$

- A)  $(-1)^n \cdot \frac{\pi}{6} + \pi$

B)  $(-1)^{n+1} \cdot \frac{\pi}{6} + \pi$

C)  $\pm \frac{\pi}{6} + 2\pi n$

D)  $\pm \frac{\pi}{6} + \pi n$

E)  $\emptyset$

13. Quyidagi tenglamaning yechimlari yig'indisini toping.

$$\begin{cases} \sqrt{2x+y+1} - \sqrt{x+y} = 1 \\ 3x+2y = 4 \end{cases}$$

- A) -2 B) -1 C) 0 D) 1 E) 2

14. Quyidagi tenglamaning yechimlari yig'indisini toping.

$$\sqrt[3]{\frac{2-x}{1+x}} + 3\sqrt{\frac{1+x}{2-x}} = 2$$

- A)  $-\frac{1}{2}$  B)  $\frac{1}{2}$   
C) 0 D)  $\frac{3}{2}$   
E)  $\frac{4}{3}$

15.  $\log_{\sqrt{5}} \sqrt{5\sqrt{5}\sqrt{5}\dots} = ?$

- A) 1 B)  $\frac{1}{2}$   
C) 2 D)  $\sqrt{5}$   
E) 5

16.  $2x^2 + 2y^2 - 4x + 8y - 40 = 0$  aylanaga konsentrik bo'lgan va radiusi uning radiusidan 1 birlik ko'p bo'lgan aylana tenglamasini ko'rsating.

- A)  $(x+3)^2 + (y+2)^2 = 16$   
B)  $(x-1)^2 + (y-2)^2 = 16$   
C)  $(x-2)^2 + (y+3)^2 = 4$   
D)  $(x+1)^2 + (y-1)^2 = 4$   
E)  $(x-1)^2 + (y+2)^2 = 36$

17.  $f(g(x)) = \frac{3x-5}{x+12}$  va  $f(x) = 2x+3$

$g(x) = ?$

A)  $\frac{9x-26}{x+12}$

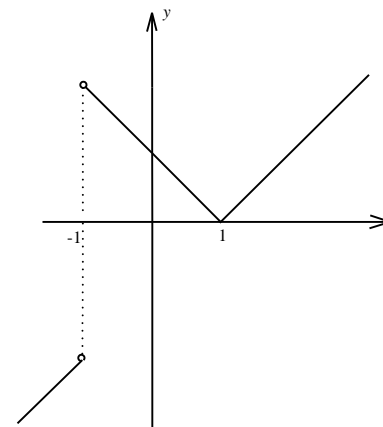
B)  $-\frac{41}{2x+24}$

C)  $\frac{41}{2x+24}$

D)  $\frac{-9x+26}{x+12}$

E)  $\frac{x-41}{x+12}$

18. Quyidagi grafik qaysi funksiyaga tegishli?



A)  $y = x|x-1|$  B)  $y = \frac{x^2-1}{|x-1|}$

C)  $y = \frac{|x^2-1|}{x+1}$  D)  $y = \frac{|x^2-1|}{x-1}$

E)  $y = |x^2-1|$

19.  $x^2 + 3x + a - 6 = 0$  tenglamaning ildizlari  $x_1, x_2$  va  $3x_1 + x_2 = 1$  bo'lsa,  $a = ?$

- A) -4 B) -3 C) 3 D) 4 E) 14

20.  $\frac{|x+1| \cdot (x^2 - 6x + 90)}{x^2 - 3x - 10} < 0$

Tengsizlikni qanoatlantiradigan nechta turli butun son mavjud?

- A) 3 B) 4 C) 5 D) 6 E) 7

21. Bratskiy Mogilladagi o'quvchilar soni 1100 ta bo'lib, har yili 200 tadan kamaymoqda va Movarounnahr Ziyoda 100 ta o'quvchi bo'lib har yili 50 tadan ortmoqda. Necha yildan keyin har ikkala kurslardagi o'quvchilar soni tenglashadi?

- A) 1 B) 8 C) 4 D) 2 E) 10

22.  $y = \frac{1}{x}$  to'g'ri chiziq,  $y = 1$  va  $y = 4$  to'g'ri

chiziqlari va  $y$  o'qi bilan chegaralangan soha,  $y$  o'qi atrofida aylanishi natijasida hosil bo'lgan jismning hajmini toping.

- A)  $\frac{3\pi}{4}$  B)  $\frac{2\pi}{3}$   
C)  $\frac{3\pi}{2}$  D)  $\frac{4\pi}{3}$   
E)  $\frac{\pi}{2}$

23. MABCD piramidaning asosi ABCD kvadratdan iborat, MA qirasi asos tekisligiga perpendikulyar,  $MC = 5\sqrt{2}$ ,  $0 < BC < 5\sqrt{2}$ , CBM uchburchakning eng katta yuzini toping.

- A)  $12\sqrt{2}$  B)  $\frac{25}{2}\sqrt{2}$   
C) 12,5 D) 25  
E) aniqlab bo'lmaydi

24. Bir guruhdagi o'g'il bolalar soni qizlar sonidan 8 marta ko'p bo'lsa, guruhdagi qizlar va og'il bolalarning umumiy soni quyidagilardan qaysi biriga teng bo'la olmaydi?

- A) 10215 B) 4005  
C) 1206 D) 7106  
E) 8001

$$25. \frac{2x+7}{x^2-2x-3} = \frac{A}{x-3} + \frac{B}{x+1}$$

bo'lsa,  $A+B=?$

- A) -3 B) 2  
C) -1 D) 0  
E) 1

26.  $f(x) = x^5 - 2x^4 + x^3 - x + 3$  ko'phadi  $x^2 + 2$  ga bo'lingandagi qoldiq quyidagilardan qaysi biri?

- A)  $x-2$  B)  $2x+1$   
C)  $x-5$  D)  $x+3$   
E)  $2x-3$

$$27. 1 + \log_x \frac{4-x}{10} = (\lg \lg 2 - 1) \cdot \log_x 10$$

Tenglama nechta yechimga ega?

- A) 1 B) 2 C) 3 D) 4 E) 5

$$28. \int_{\frac{5\pi}{3}}^{\frac{3\pi}{2}} |\sin x| dx$$

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

29.  $a$  ning nechta qiymatida  $x^2 + y^2 = 1$  va  $(x-a)^2 + y^2 = 4$  aylanalar urinadi?

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

$$30. \sqrt{2^3 \cdot \sqrt{5^3 \cdot \sqrt{2^3 \dots}}} = ?$$

- A) 17 B) 12 C) 14 D) 41 E) 20

31. Hisoblang.

$$2 + \frac{2}{5 \cdot 7} + \frac{2}{7 \cdot 9} + \dots + \frac{2}{73 \cdot 75}$$

- A)  $\frac{16}{75}$  B)  $\frac{28}{75}$   
C)  $\frac{14}{75}$  D)  $2\frac{14}{75}$   
E)  $3\frac{16}{75}$

32.  $x^3 + (m-3)x^2 - m^2x + m^2 + 1 = 0$  tenglamada  $x_1 = 2$  bo'lsa,  $m$  ning qiymatini toping.

- A) {3; 4} B) {0; 1}  
C) {1; 3} D) {3; 5}  
E) {1; 5}

33.  $3^{4n+2}$  ni 10 ga bo'lgandagi qoldiqni toping.

- A) 4 B) 8 C) 9 D) 6 E) 1

34.  $m$  ning qanday qiymatlarida  $y = \cos x + mx$  funksiya aniqlanish sohasida kamayadi?

- A)  $[-1; 1]$  B)  $(-1; \infty)$   
C)  $[-1; \infty)$  D)  $(-\infty; 1)$   
E)  $(-\infty; -1)$

35. To'g'ri burchakli uchburchakda o'tkir burchaklarining medianalari uzunliklari 15 va  $6\sqrt{5}$  ga teng. Gipotenuza ning uzunligini toping

- A) 18 B) 16 C) 20 D) 21 E) 19

36. To'rtta nuqta aylanani 0,5; 1,5; 2,5; 5,5 sonlariga proporsional yoylarga ajratadi. Shu nuqtalarni ketma-ket tutashtirish natijasida hosil bo'lgan to'rtburchak diagonallari orasidagi burchaklar ayirmasini toping.

- A) 75 B) 72 C) 108 D) 105 E) 126

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