## 33-Mavzu. Trigonometrik tenglamalar

**1.** Hisoblang: $\sin(2\operatorname{arctg}5)$

A) $\frac{3}{5}$ B) $\frac{5}{13}$ C) $\frac{4}{5}$ D) $\frac{12}{13}$

**2.** Hisoblang: $\arccos\left(\left(-\frac{2}{\sqrt{3}}\right)^{-1}\right)+\operatorname{arctg}\left(\left(3^{-\frac{1}{2}}\right)\right)$

A) $-180°$ B) $180°$ C) $-120°$ D) $120°$

**3.** Hisoblang: $\operatorname{tg}(\operatorname{arctg}(-3)+\arcsin 0)+\cos\left(\arccos\left(\frac{2}{3}\right)\right)$

A) $\frac{1}{3}$ B) $-\frac{1}{3}$ C) $\frac{7}{3}$ D) $-\frac{7}{3}$

**4.** Hisoblang: $\arccos\left(\cos\frac{6\pi}{7}\right)$

A) $\frac{6\pi}{7}$ B) $\frac{\pi}{7}$ C) $-\frac{\pi}{7}$ D) $-\frac{6\pi}{7}$

**5.** Hisoblang: $\arccos(\sin 105°)$

A) $105°$ B) $15°$ C) $75°$ D) $165°$

**6.** Hisoblang: $\arcsin\big(\sin(-110°)\big)$

A) $-110°$ B) $-70°$ C) $70°$ D) $110°$

**7.** Hisoblang: $\cos(\operatorname{arcctg}(-\frac{4}{3}))$

A) $\frac{\sqrt{5}}{5}$ B) $-\frac{\sqrt{5}}{5}$ C) 0,8 D) –0,8

**8.** $\operatorname{tg}(\arccos\frac{4}{5}-\arcsin\frac{7}{25})$ ni hisoblang.

A) $\frac{44}{75}$ B) $\frac{44}{117}$ C) $\frac{100}{117}$ D) $\frac{4}{3}$

**9.** $\sin\left(\arccos\frac{3}{5}+600\arcsin\frac{1}{2}\right)$ ni hisoblang.

A) 0,6 B) $-0,6$ C) 0,8 D) –0,8

**10.** Agar $4\operatorname{ctg}(2\operatorname{arctg}2)+2\operatorname{arcctg}(\operatorname{tg}2)=x$ bo‘lsa, $x+7$ ni toping .

A) $\pi-3$ B) $3\pi+5$ C) 4 D) $3\pi$

**11.** Agar $|a| \le 1, |b| \le 1$ bo‘lsa, $arccos\, a - 8\, arcsin\, b$ ifodaning eng katta qiymati nechaga teng bo‘ladi?

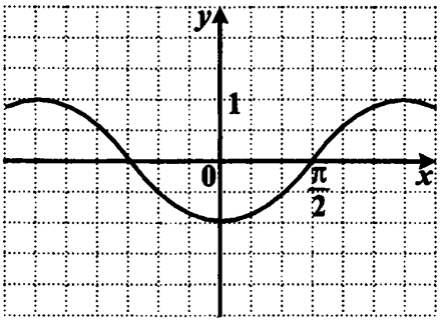
A) 1 B) $2\pi$ C) $5\pi$ D) $3\pi$

**12.** $y = log_2((ctg42° - x)(x - sin\,42°))$ funksiyaning aniqlanish sohasini toping.

A) $(sin\,42°; ctg48°)$ B) $(cos\,48°; ctg42°)$

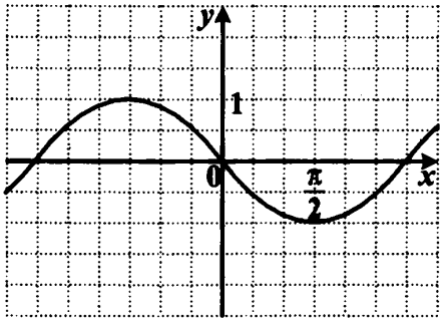
C) $(ctg42°; sin\,42°)$ D) $(ctg42°; sin\,48°)$

**13.** Chizmada qaysi funksiyaning grafigi tasvirlangan?




A) $y = \cos x$ B) $y = -\cos x$ C) $y = \sin x$ D) $y = -\sin x$

**14.** Chizmada qaysi funksiyaning grafigi tasvirlangan?




A) $y = \cos x$ B) $y = -\cos x$ C) $y = \sin x$ D) $y = -\sin x$

**15.** Funksiyaning aniqlanish sohasini toping: $f(x)=\frac{3\sqrt{x}-4\sqrt{2-x}}{sin\,\pi x}$

A) [0;2] B) [0;1) C) (0;1)∪ (1;2) D) $[0;\frac{\pi}{2})\cup(\frac{\pi}{2};2)$

**16.** Funksiyaning eng kichik musbat davrini toping: $y$ =2+cos(8$x$–7)

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

**17.** Funksiyaning eng kichik musbat davrini toping: $y$ = 2+cos(2,5$x$-7)

A) $\frac{4\pi}{5}$ B) $\frac{\pi}{2}$ C) $\frac{\pi}{3}$ D) $\frac{2\pi}{5}$

**18.** $y = sin\frac{\pi x}{3} + 3\,cos\frac{\pi x}{4} - tg\frac{\pi x}{4}$ funksiyaning eng kichik musbat davrini toping.

A) 12 B) $12\pi$ C) $24\pi$ D) 24

**19.** Agar $y = sin^2\left(\frac{3\pi x}{a} + \frac{\pi}{3}\right)$ funksiyaning eng kichik musbat davri 5 bo‘lsa, $y = \pi ctg(2ax + \pi)$ funksiyaning eng kichik musbat davrini toping.

A) $\frac{5\pi}{4}$ B) $\frac{\pi}{15}$ C) $\frac{\pi}{30}$ D) 2,5

**20.** $y = \frac{8\,sin\,x - 15\,cos\,x + 9}{4}$ funksiyaning eng katta qiymatini toping.

A) 6,5 B) 7,5 C) 5 D) 6

**21.** $y = \frac{sin\,2x}{sin\,x}$ funksiyaning eng kichik butun qiymatini toping.

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

**22.** $f(x) = \frac{sin\,2x}{cos\,x} - 1$ funksiyaning qiymatlar sohasini toping .

A) (–1;1) B) (–2;2) C) (–3;1) D) [–2;0)∪(0;2]

**23.** $y = \frac{1}{\pi} arccos(x - 5) + |x - 7|$ funksiyaning qiymatlar sohasini toping.

A) [1;4] B) [4;8] C) [–2;1] D) [5;9]

**24.** Juft funksiya berilgan javobni toping.

A) $f(x) = \cos x \cdot \mathrm{ctg}x$ B) $f(x) = |\sin x| \cdot \mathrm{ctg}x$

C) $f(x) = \frac{\sin x + x^3}{\cos x}$ D) $f(x) = \cos x \cdot \mathrm{ctg}^2 x$

**25.** Tenglamani yeching: $\sin\frac{x}{2} = 1$

A) $\frac{\pi}{4} + \frac{\pi k}{2}, k \in Z$ B) $\frac{\pi}{4} + \pi k, k \in Z$ C) $\pi + 4\pi k, k \in Z$ D) $\pi + 2\pi k, k \in Z$

**26.** Tenglamani yeching: $\sin 2x = -1$

A) $-\frac{\pi}{4} + \pi k, k \in Z$ B) $-\frac{\pi}{4} + \frac{\pi k}{2}, k \in Z$ C) $-\pi + 4\pi k, k \in Z$ D) $\pi k, k \in Z$

**27.** Tenglamani yeching: $\cos\frac{x}{2} = 1$

A) $\pi k, k \in Z$ B) $4\pi k, k \in Z$ C) $2\pi k, k \in Z$ D) $\pi + 2\pi k, k \in Z$

**28.** Tenglamani yeching: $3cos5x - 3 = 0$

A) $\frac{2\pi k}{5}, k \in Z$ B) $2\pi k, k \in Z$ C) $\pi k, k \in Z$ D) $\frac{\pi k}{5}, k \in Z$

**29.** Tenglamani yeching: $cos\left(3x-\frac{\pi}{6}\right)=-1$

A) $\frac{5\pi}{18}+\frac{\pi k}{3}, k\in Z$ B) $\frac{7\pi}{18}+\frac{2\pi k}{3}, k\in Z$ C) $\frac{9\pi}{18}+\frac{\pi k}{3}, k\in Z$ D) $\frac{7\pi}{18}+2\pi k, k\in Z$

**30.** $5\,sin\,4x-8=3\,cos(\frac{\pi}{2}+4x)$ tenglama [–2π;2π] kesmada nechta ildizga ega?

A) 7 B) ∅ C) 6 D) 8

**31.** Tenglamani yeching: $\sin x-\frac{\sqrt{2}}{2}=0$

A) $\frac{\pi}{4}+2\pi k, k\in Z$ B) $\frac{\pi}{4}+\pi k, k\in Z$

C) $(-1)^k\frac{\pi}{4}+\pi k, k\in Z$ D) $\pm\frac{\pi}{4}+2\pi k, k\in Z$

**32.** cos3*x*cos*x*+0,5=sin3*x*sin*x* tenglamaning ildizlarini ko‘rsating.

A) $\frac{\pi}{6}+2\pi k\,, k\in Z$ B) $\frac{\pi}{4}+\frac{\pi k}{2}\,, k\in Z$ C) $\pm\frac{\pi}{6}+\frac{\pi k}{2}\,, k\in Z$ D) $\pi k\,, k\in Z$

**33.** $sin(\frac{\pi}{6}+x)+sin(\frac{\pi}{6}-x)=-\frac{\sqrt{3}}{2}$ tenglamaning ildizlarini ko‘rsating.

A) $\frac{\pi}{6}+2\pi k, k\in Z$ B) $\pm\frac{5\pi}{6}+2\pi k, k\in Z$

C) $\pm\frac{2\pi}{3}+2\pi k, k\in Z$ D) $\pm\frac{\pi}{3}+2\pi k, k\in Z$

**34.** $sin\frac{x}{2}+cos\,x-1=0$ tenglamaning $[0;2\pi]$ kesmada nechta ildizi bor?

A) 4 B) 3 C) 2 D) 0

**35.** $\frac{cos\,2x}{\frac{\sqrt{2}}{2}+sin\,x}=0$ tenglamaning [0;4π] oraliqda nechta ildizi bor?

A) 8 B) 6 C) 4 D) 2

**36.** Tenglamani yeching: $\frac{sin\,2x}{1+ctgx}=0$

A) $\frac{\pi}{2}+\pi\kappa$ B) $\pi\kappa$ C) $\frac{\pi\kappa}{2}$ D) $\pi+2\pi\kappa\ \ (k\in Z)$

**37.** Tenglamani yeching: $\frac{sin\,2x}{ctgx-cos\,x}=0$

A) $\frac{\pi}{2}+\pi\kappa$ B) ∅ C) $\frac{\pi\kappa}{2}$ D) $2\pi\kappa\ \ (k\in Z)$

**38.** $\frac{cos^2\,x-cos\,x}{sin\,x}=0$ tenglama $[-2\pi;2\pi]$ oraliqda nechta ildizga ega?

A) 4 B) 6 C) 2 D) 3

**39.** $\frac{1+cos\,x}{tg\frac{x}{3}} = 0$ tenglama [0;9π] oraliqda nechta yechimga ega?

A) 2 B) 3 C) 4 D) 5

**40.** $\sqrt{sin\,x} \cdot cos\,x = 0$ tenglamani yeching.

A) $\pi k, \frac{\pi}{2} + \pi k, k \in Z$ B) $\frac{\pi}{2} + \pi k, k \in Z$

C) $\frac{\pi}{2} + 2\pi k, k \in Z$ D) $\pi k, \frac{\pi}{2} + 2\pi k, k \in Z$

# Kalitlar

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|---|---|---|---|---|---|
| 1. | B | 16. | D | 31. | C |
| 2. | B | 17. | A | 32. | C |
| 3. | D | 18. | D | 33. | B |
| 4. | A | 19. | C | 34. | A |
| 5. | B | 20. | A | 35. | C |
| 6. | B | 21. | B | 36. | A |
| 7. | D | 22. | C | 37. | B |
| 8. | B | 23. | A | 38. | A |
| 9. | C | 24. | D | 39. | B |
| 10. | D | 25. | C | 40. | D |
| 11. | C | 26. | C | | |
| 12. | B | 27. | B | | |
| 13. | B | 28. | A | | |
| 14. | D | 29. | B | | |
| 15. | C | 30. | D | | |