34-Mavzu. Trigonometrik tenglamalar

1. $\sqrt{sin\,x} \cdot cos\,x = 0$ 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) $\pi k, \frac{\pi}{2} + 2\pi k, k \in Z$

2. $\sqrt{3} \sin x - \mathrm{tg} x + \mathrm{tg} x \cdot \sin x = \sqrt{3}$ tenglamani yeching.

A) $-\frac{\pi}{3} + \pi n, n \in Z$ B) $\frac{\pi}{2} + 2\pi n, n \in Z$

C) $-\frac{\pi}{3} + \pi n; \frac{\pi}{2} + 2\pi n, n \in Z$ D) $\frac{\pi}{3} + \pi n, n \in Z$

3. $cos x cos 4x - cos 5x = 0$ tenglama $[0;\pi]$ oraliqda nechta yechimga ega?

A) 1   B) 2   C) 4   D) 5

4. $cos x\, cos 2x - cos 3x = 0$ tenglama $[0;2\pi]$ oraliqda nechta yechimga ega?

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

5. $1 - sin\,5\,x = (cos\frac{3x}{2} - sin\frac{3x}{2})^2$ tenglamaning $[360°; 450°]$ oraliqdagi ildizlari yig'indisini toping.

A) $495°$ B) $1575°$ C) $1170°$ D) $1255°$

6. $sin\,3\,x - 2\,sin\,x = 0$ tenglamaning $[0; 2\pi]$ oraliqdagi ildizlari sonini toping.

A) 2   B) 5   C) 6   D) 7

7. Tenglamani yeching: $cos 2x - 5 sin x - 3 = 0$

A) $(-1)^n \frac{\pi}{6} + \pi n, \quad n \in Z$ B) $(-1)^{n+1} \frac{\pi}{6} + \pi n, \quad n \in Z$

C) $(-1)^n \frac{\pi}{6} + 2\pi n, \quad n \in Z$ D) $(-1)^{n+1} \frac{\pi}{6} + 2\pi n, \quad n \in Z$

8. Tenglamani yeching: $sin\left(\frac{\pi}{3} - x\right) \cdot sin\left(x + \frac{\pi}{3}\right) = \frac{1}{2}$

A) $(-1)^n \frac{\pi}{6} + \pi n$ B) $\pm \frac{\pi}{6} + \pi n$ C) $\frac{\pi}{3} + \pi n$ D) $\frac{\pi}{6} + \pi n\ (n \in Z)$

9. $4 \sin 5\,x = 6 + 3 \sin(\frac{\pi}{2} + 5x)$ tenglama $[-\pi;2\pi]$ kesmada nechta ildizga ega?

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

10. $\frac{cos\,3x}{sin\,3x - 2\,sin\,x} = ctg x$ tenglamaning $[-\pi, 3\pi]$ kesmada $\frac{\pi}{2}$ ga karrali nechta ildizi bor?

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

11. k ning quyida ko'rsatilgan qiymatlaridan qaysi birida

$cos\, k\, x \cdot cos\, 4\, x - sin\, k\, x \cdot sin\, 4\, x = \frac{\sqrt{3}}{2}$ tenglamaning ildizlari

$\pm\frac{\pi}{30} + \frac{2\pi n}{5}\,(n \in Z)$ bo'ladi?

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

12. $1 - 2\,sin^2\, x\, cos^2\, x = a\, sin\, x\, cos\, x$ tenglama ildizga ega bo'ladigan a ning barcha qiymatlarini ko'rsating.

A) $(-\infty;-1] \cup [1; \infty)$ B) $[1;5]$ C) $[-1;1]$ D) $[1; \infty)$

13. $1 - 2\,sin^2\, x\, cos^2\, x = a(sin^6\, x + cos^6\, x)$ tenglama ildizga ega bo'ladigan a ning barcha qiymatlarini ko'rsating.

A) $[1;1,5]$ B) $[1;2]$ C) $[0;1]$ D) $[-1;1]$

14. a parametrning qanday qiymatlarida $7sinx - 5cosx = a$ tenglama yechimga ega bo'ladi?

A) $-1 \le a \le 1$ B) $-\sqrt{24} \le a \le \sqrt{24}$ C) $-\sqrt{74} \le a \le \sqrt{74}$ D) $2 \le a \le 12$

15. Agar $cos\, x - cos^2\, x + cos^3\, x - cos^4\, x +\ldots = -\frac{1}{2}$ bo'lsa, $\frac{1}{cos\, x}$ ni toping.

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

16. $ctg(\frac{\pi}{2} - 3x) = tg2x + tgx$ tenglamani yeching

A) $\frac{\pi n}{2}; n \in Z$ B) $\pi n; n \in Z$ C) $\frac{\pi n}{3}; n \in Z$ D) $\frac{\pi}{2} + \pi n; n \in Z$

17. $cos^2\, 4\, x + tg2x \cdot sin\, 4\, x = cos\, 4\, x$ tengalamaning $(0; \pi]$ oraliqqa tegishli ildizlari sonini toping.

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

18. Ushbu $3sin2x + 5sin4x = 8$ tenglama $[-2\pi; 2\pi]$ kesmada nechta ildizga ega?

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

19. $3sin5x + 4cos5x = 6$ tenglama $[-\pi; 2\pi]$ kesmada nechta ildizga ega?

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

20. $sin\, 2\, x + cos(\frac{3\pi}{2} + 6x) = sin\, 4\, x$ tenglamani yeching.

A) $\pm\frac{\pi}{6} + \pi n; \frac{\pi n}{4}; n \in Z$ B) $\frac{\pi n}{4}; n \in Z$ C) $\pi n; n \in Z$ D) $-\frac{\pi}{3} + \pi n; n \in Z$

21. Tenglamani yeching: $3cosx - 4sinx = -3$

A) $arctg\frac{3}{4} + \pi n, \quad n \in Z$ B) $2arctg\frac{3}{4} + 2\pi n, \quad n \in Z$

C) $\pi + 2\pi n, \quad n \in Z$ D) $\pi + 2\pi n, 2arctg\frac{3}{4} + \pi n, \quad n \in Z$

22. $3sin2x - 2cos2x = 2$ tenglama $[0; 2\pi]$ kesmada nechta ildizga ega?

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

23. $\frac{1}{cos\,x} + \frac{\sqrt{3}}{sin\,x} = 4$ tenglamaning eng kichik musbat yechimini toping.

A) $\frac{\pi}{3}$ B) $\frac{2\pi}{9}$ C) $\frac{2\pi}{3}$ D) $\frac{\pi}{6}$

24. Tenglamani yeching: $6^{log_6(\sqrt{3}cosx)} + 5^{\frac{1}{2}log_5 6} = 27^{\frac{1}{3}+log_{27}sinx}$

A) $\frac{3\pi}{4} + 2\pi n; \quad n \in Z$ B) $\frac{7\pi}{12} + 2\pi n, \quad n \in Z$

C) $\frac{5\pi}{12} + 2\pi n, \quad n \in Z$ D) $\frac{11\pi}{12} + 2\pi n, \quad n \in Z$

25. Tenglamani yeching: $log_{cosx}sin2x - 4 + 4log_{sin2x}cosx = 0$

A) $arcctg2 + \pi k, \quad k \in Z$ B) $-arcctg2 + 2\pi k, \quad k \in Z$

C) $arcctg\sqrt{2} + 2\pi k, \quad k \in Z$ D) $arcctg2 + 2\pi k, \quad k \in Z$

26. Ushbu $2x + tgx = 0$ tenglama $[0; 2\pi]$ kesmada nechta ildizga ega?

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

27. $tg(82° + x) + tg(8° - x) = 2$ tenglamaning eng kichik musbat ildizini toping.

A) $143°$ B) $180°$ C) $74°$ D) $37°$

28. Tenglamani yeching: $sin\,x - sin^2\,x + sin^3\,x = cos\,x - cos^2\,x + cos^3\,x$

A) $\frac{\pi}{2} + \pi n, n \in Z$ B) $\frac{\pi}{4} + 2\pi n, n \in Z$ C) $\frac{\pi}{3} + \pi n, n \in Z$ D) $\frac{\pi}{4} + \pi n, n \in Z$

29. $cos\,2\,x + \sqrt{sin\,2\,x - tg\frac{4x-\pi}{4} \cdot tg\frac{4x+\pi}{4}} = 0$ tenglama $[-\pi; 4\pi]$ oraliqda nechta ildizga ega?

A) 9   B) 5   C) 10   D) 7

30. $tg(x + \frac{\pi}{4}) = 3ctgx - 1$ tenglama $[0; 2\pi]$ kesmada nechta ildizga ega?

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

Kalitlar

1.	D	16.	C
2.	A	17.	B
3.	D	18.	A
4.	A	19.	A
5.	C	20.	A
6.	C	21.	D
7.	B	22.	D
8.	B	23.	B
9.	B	24.	B
10.	D	25.	D
11.	C	26.	C
12.	A	27.	A
13.	B	28.	D
14.	C	29.	B
15.	B	30.	D