

Solving Trigonometric Equations (5.5)

Solving Basic Trigonometric Equations: Find all solutions of each equation.

1) $\sin x = \frac{\sqrt{2}}{2}$

2) $\csc x = -2$

3) $5 \cos x = 3 \cos x + \sqrt{3}$

4) $5 + 2 \tan x = -4 \tan x + 5$

5) $\sin x = 3 \sin x - 6$

6) $3 \cot x = -\sqrt{3}$

7) $\sqrt{3} \sec x = -2$

8) $9 \tan x + 7 = 5 \tan x + 3$

Solving Multiple Angle Trigonometric Equations: Solve all equations on the interval $[0, 2\pi)$.

9) $\sin 4x = -\frac{\sqrt{2}}{2}$

10) $\tan \frac{x}{2} = \frac{\sqrt{3}}{3}$

11) $\cos \frac{2\theta}{3} = -1$

12) $\cot \frac{3\theta}{2} = -\sqrt{3}$

Solving Quadratic Trigonometric Equations: Solve all equations on the interval $[0, 2\pi)$.

13) $2\sin^2 x + \sin x - 1 = 0$

14) $4\cos^2 x - 3 = 0$

Solving Trig Equations Using Identities: Use an identity to solve each equation on the interval $[0, 2\pi)$.

15) $2\cos^2 x - \sin x - 1 = 0$

16) $4\sin^2 x + 4\cos x - 5 = 0$

17) $3\cos^2 x = \sin^2 x$

18) $\sin x \cos x = \frac{\sqrt{3}}{4}$

19) $\sin x + \cos x = -1$

20) $5\sec^2 x - 10 = 0$

21) $2\sin^2 x = 2 - 3\sin x$

22) $\tan x \sec x = 2 \tan x$

23) $\sin 2x = \cos x$

24) $\cos 2x = \cos x$