TRIGONOMETRIC FUNCTIONS

TRIGONOMETRIC EQUATION

EXERCISE

Q.1 Solve $7\cos^2\theta + 3\sin^2\theta = 4$.

Q.2 Solve $\sin 3x + \cos 2x = -2$

Q.3 Solve $\sqrt{3\sin 5x - \cos^2 x - 3} = 1 - \sin x$

Q.4 Solve $\sin 2x + 5\sin x + 1 + 5\cos x = 0$

Q.5 Solve $3\cos x + 3\sin x + \sin 3x - \cos 3x = 0$

Q.6 Solve $(1 - \sin 2x)(\cos x - \sin x) = 1 - 2\sin^2 x$.

Q.7 Solve $\sqrt{3}\cos x + \sin x = 2$

Q.8 Solve $\sin 7\theta = \sin 3\theta + \sin\theta$

Q.9 Solve $5\sin x + 6\sin 2x + 5\sin 3x + \sin 4x = 0$

Q.10 Solve $\cos^3 x + \cos^2 x - 4\cos^2 \frac{x}{2} = 0$

Q.11 Solve $\cos 2\theta - (\sqrt{2} + 1)\left(\cos\theta - \frac{1}{\sqrt{2}}\right) = 0$

Q.12 Solve $\cot\theta = -1$

ANSWER KEY

1. $n\pi \pm \frac{\pi}{3}, n \in I$

2. $(4p - 3)\frac{\pi}{2}, p \in I$

3. $2m\pi + \frac{\pi}{2}, m \in I$

4. $n\pi - \frac{\pi}{4}, n \in I$

5. $n\pi - \frac{\pi}{4}, n \in I$

6. $2n\pi + \frac{\pi}{2}, n \in I$ or $2n\pi, n \in I$ or $n\pi + \frac{\pi}{4}, n \in I$

7. $2n\pi + \frac{\pi}{6}, n \in I$

8. $\frac{n\pi}{3}, n \in I$ or $\frac{n\pi}{2} \pm \frac{\pi}{12}, n \in I$

9. $\frac{n\pi}{2}, n \in I$ or $2n\pi \pm \frac{2\pi}{3}, n \in I$

10. $(2n + 1)\pi, n \in I$

11. $2n\pi \pm \frac{\pi}{3}, n \in I$ or $2n\pi \pm \frac{\pi}{4}, n \in I$

12. $\theta = n\pi - \frac{\pi}{4}, n \in I$