

I. Find the solution of the following equations if $x \in [0, 2\pi)$.

1. $\sqrt{3} \sin x + \cos x = 0$

2. $\sin 2x = \cos 2x + 1$

3. $\tan^2 \frac{x}{2} - 2 \sec^2 \frac{x}{2} + 5 = 0$

4. $2 \cos^4 x + 9 \sin^2 x = 5$

5. $\sin x = \sin \frac{x}{2}$

II. Find the solution of the following equations if $\theta \in [0^\circ, 360^\circ)$.

1. $\cot^2 \theta - 2 \csc \theta + 1 = 0$

2. $4 \cos^2 \theta - 2\sqrt{3} \sin \theta + 2 \sin \theta = 4 - \sqrt{3}$

3. $\csc 2\theta - 4 \sin 2\theta = 0$

4. $10 \cos \theta \cos^2 \frac{\theta}{2} = 2 \cos^3 \theta + 7 \cos \theta$

5. $\cos 3\theta - \cos \theta = \sqrt{2} \sin 2\theta$