

1. Solve the following equation algebraically for the given domain. Show all work.

$$-4 \cos x + 3 \sin x = 4 \quad x \in [0, 2\pi]$$

2. Solve the following equation algebraically for the given domain. Show all work.

$$\sin(8\theta) \cos(5\theta) - \cos(8\theta) \sin(5\theta) = 0.4 \quad \theta \in [0, 360^\circ]$$

3. Solve the following equation algebraically for the given domain. Show all work.

$$\cos(3x) \cos(x) + \sin(3x) \sin(x) = -1 \quad x \in [0, 2\pi]$$

4. Solve the following equation algebraically for the given domain. Show all work.

$$\frac{\tan\theta + \tan 27^\circ}{1 - \tan\theta \tan 27^\circ} = 1 \quad \theta \in [0, 360^\circ]$$