

$$9. \sin(4x) = 0$$

$$\sin[2 \cdot \underbrace{(2x)}_A] = 0$$

$$2 \sin(2x) \cos(2x) = 0$$

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

$$\sin x = 0 \quad \cos x = 0 \quad 2 \cos^2 x - 1 = 0$$

$$x = 0, \pi$$

$$x = \frac{\pi}{2}, \frac{3\pi}{2}$$

$$2 \cos^2 x = 1$$

$$\cos^2 x = \frac{1}{2}$$

$$\cos x = \pm \sqrt{\frac{1}{2}}$$

$$\cos x = \pm \frac{\sqrt{2}}{2}$$

$$\cos x = \pm \frac{1}{\sqrt{2}}$$

$$\cos x = \pm \frac{\sqrt{2}}{2}$$

$$x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$$