

product to sum

sum to product

$$8. 2 \cos^2 x - 1 = 0$$

$$(\sqrt{2} \cos x - 1)(\sqrt{2} \cos x + 1) = 0$$

$$\cos x = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}, \quad \cos x = -\frac{1}{\sqrt{2}}$$

$$Q1: \frac{\pi}{4} + 2\pi k, k \in \mathbb{Z} \quad \Bigg| \quad Q2: \frac{3\pi}{4} + 2\pi k$$

$$Q4: \frac{7\pi}{4} + 2\pi k, k \in \mathbb{Z} \quad \Bigg| \quad Q3: \frac{5\pi}{4} + 2\pi k$$

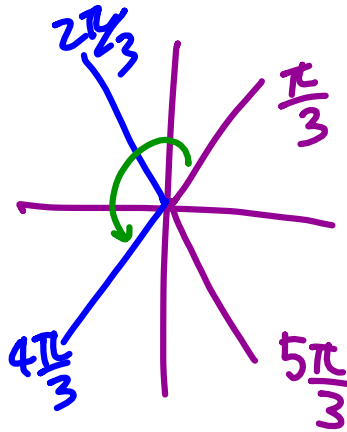
$$x = \frac{\pi}{4} + \frac{\pi}{2}k, k \in \mathbb{Z}$$

$$7. 4 \cos^2 x - 1 = 0$$

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

$$\frac{\pi}{3} + k\pi$$

$$\frac{2\pi}{3} + k\pi$$



$$25. 2 \sin 3x + 1 = 0$$

$$\sin 3x = -\frac{1}{2}$$

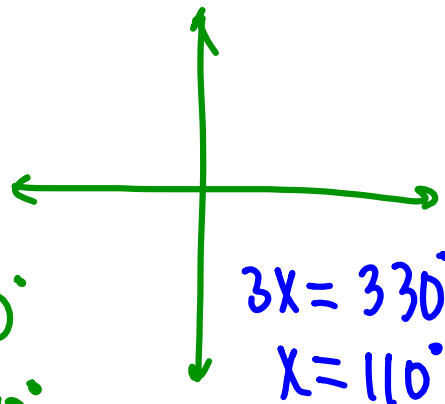
$$\underline{3x} = 210^\circ \rightarrow x = 70^\circ$$

$$570^\circ \rightarrow x = 190^\circ$$

$$930^\circ \rightarrow x = 310^\circ$$

$$x = 70^\circ + 120^\circ k$$

$$110^\circ + 120^\circ k$$



$$37. 4 \sin x \cos x + 2 \sin x - 2 \cos x - 1 = 0$$

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

$$39. \cos^2 2x - \sin^2 2x = 0$$

$$\underline{\cos 4x = 0}$$