

2.48  
x8

$$\cos x - \sin x < \sqrt{2} \sin 2x \quad /: \sqrt{2}$$

$$\frac{1}{\sqrt{2}} \cos x - \frac{1}{\sqrt{2}} \sin x < \sin 2x$$

$$\sin 45^\circ \cos x - \cos 45^\circ \sin x < \sin 2x$$

$$\sin(45^\circ - x) < \sin 2x$$

$$0 < \sin 2x - \sin(45^\circ - x)$$

$$0 < 2 \sin\left(\frac{3x-45^\circ}{2}\right) \cos\left(\frac{x+45^\circ}{2}\right)$$

$$\downarrow$$
$$\frac{3x-45^\circ}{2} = \pi k$$

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

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

$$\downarrow$$
$$\frac{x + \frac{\pi}{4}}{2} = \frac{\pi}{2} + \pi k$$

$$x = \frac{3\pi}{4} + 2\pi k$$

