

2.49
E7

$$\cos 4x \cos(\pi + 2x) - \sin 2x \cos\left(\frac{\pi}{2} - 4x\right) = \frac{\sqrt{2}}{2} \sin 4x$$

$$-\cos 4x \cos 2x - \sin 2x \cos(4x) = \frac{\sqrt{2}}{2} \sin 4x$$

$$-\cos(4x - 2x) = \frac{\sqrt{2}}{2} \sin(4x)$$

$$-\cos(2x) = \frac{\sqrt{2}}{2} \sin 2x \cos 2x$$

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

↙

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

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

↘

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

$$\boxed{x = -\frac{\pi}{8} + \pi k}$$

$$2x = \frac{5\pi}{4} + 2\pi k$$

$$\boxed{x = \frac{5\pi}{8} + \pi k}$$