

58

$$\sin^4\left(x - \frac{\pi}{8}\right) + \cos^4\left(\frac{\pi}{8} - x\right) = 2 + \cos\left(2x - \frac{\pi}{4}\right)$$

$$\sin^4\left(x - \frac{\pi}{8}\right) + \cos^4\left(x - \frac{\pi}{8}\right) = 2 + \cos\left(2x - \frac{\pi}{4}\right)$$

$$\left[\sin^2\left(x - \frac{\pi}{8}\right) + \cos^2\left(x - \frac{\pi}{8}\right)\right]^2 - 2\sin^2\left(x - \frac{\pi}{8}\right)\cos^2\left(x - \frac{\pi}{8}\right) = 2 + \cos\left(2x - \frac{\pi}{4}\right)$$

$$1 - \frac{1}{2}\cos^2\left(2x - \frac{\pi}{4}\right) = 2 + \cos\left(2x - \frac{\pi}{4}\right)$$

$$1 - \frac{1}{2}\cos^2\left(2x - \frac{\pi}{4}\right) = 2 + 2\cos^2\left(x - \frac{\pi}{8}\right) - 1$$

$$-\cos^2\left(2x - \frac{\pi}{4}\right) = 4\cos^2\left(x - \frac{\pi}{8}\right)$$

$$4\cos\left(x - \frac{\pi}{8}\right)\cos\left(x - \frac{\pi}{8}\right) = 4\cos^2\left(x - \frac{\pi}{8}\right) = 0$$

$$4\cos\left(x - \frac{\pi}{8}\right)\left[\cos\left(x - \frac{\pi}{8}\right) + \cos\left(x - \frac{\pi}{8}\right)\right] = 0$$

$$x - \frac{\pi}{8} = \frac{\pi}{2} + \pi k$$

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

$$\tan\left(x - \frac{\pi}{8}\right) = -1$$

$$x - \frac{\pi}{8} = -\frac{\pi}{4} + \pi k$$

$$\boxed{x = -\frac{3\pi}{8} + \pi k}$$