

2.64
k4

$$\begin{aligned} \cos x \cdot \cos \frac{x}{2} \cdot \cos \frac{3x}{2} - \sin x \sin \frac{x}{2} \sin \frac{3x}{2} &= \frac{1}{2} \\ -\cos x \cdot \frac{1}{2} [\cos x + \cos 2x] - \sin x \cdot \frac{1}{2} [\cos x - \cos 2x] &= \frac{1}{2} \quad /:2 \\ \cos^2 x + \cos x \cos 2x - \sin x \cos x + \sin x \cos 2x &= 1 \\ \cos x (\cos x + \sin x) - \sin x \cos x &= 1 - \cos 2x \\ \cos x (\cos x + \sin x) &= \sin x \cos x + \sin^2 x \\ \cos x (\cos x + \sin x) &= \sin x (\cos x + \sin x) \end{aligned}$$

$$\cos x + \sin x = 0$$

$$\tan x = -1$$

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

$$\cos 2x = \sin x$$

$$\sin\left(\frac{\pi}{2} - 2x\right) = \sin x$$

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

$$x = \frac{\pi}{6} + \frac{2\pi k}{3}$$

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

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

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