

Giải phương trình: $\sin 2x \cdot \cos x + \sin x \cos x = \cos 2x + \sin x + \cos x$ (1)

$$(1) \iff 2 \sin x \cdot \cos^2 x + \sin x \cos x = \cos 2x + \sin x + \cos x$$

$$\iff \sin x(1 + \cos 2x) + \sin x \cos x = \cos 2x + \sin x + \cos x$$

$$\iff \sin x + \sin x \cos 2x + \sin x \cos x = \cos 2x + \sin x + \cos x$$

$$\iff \cancel{\sin x} + \sin x \cos 2x + \sin x \cos x = \cos 2x + \cancel{\sin x} + \cos x$$

$$\iff \sin x \cos 2x + \sin x \cos x = \cos 2x + \cos x$$

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

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

$$\iff \begin{cases} x = \frac{\pi}{2} + k2\pi \\ x = \frac{2\pi}{3} + \frac{k2\pi}{3} \end{cases} \quad (k \in \mathbb{Z})$$