

2.74
5

$$\sin^2 x \cos 9x - \cos^2(5x + \frac{\pi}{4}) = -\cos^2(4x + \frac{\pi}{4})$$

$$\sin^2 x \cos 9x = \cos^2(5x + \frac{\pi}{4}) - \cos^2(4x + \frac{\pi}{4})$$

$$\sin^2 x \cos 9x = (\cos(5x + \frac{\pi}{4}) - \cos(4x + \frac{\pi}{4}))(\cos(5x + \frac{\pi}{4}) + \cos(4x + \frac{\pi}{4}))$$

$$\sin^2 x \cos 9x = -2\sin(\frac{9x}{2} + \frac{\pi}{4})\sin(\frac{x}{2}) \cdot 2\cos(\frac{9x}{2} + \frac{\pi}{4})\cos(\frac{x}{2})$$

$$\sin^2 x \cos 9x = -\sin(9x + \frac{\pi}{2})\sin(x)$$

$$\sin^2 x \cos 9x + \sin 9x \sin x = 0$$

$$\sin x \cos 9x (\sin x + 1) = 0$$

↓

$x = \pi k$	$9x = \frac{\pi}{2} + \pi k$	$x = \frac{3\pi}{2} + 2\pi k$
	$x = \frac{\pi}{18} + \frac{\pi k}{9}$	