

$$\sin 2x \cdot \sin 6x \cdot \cos 4x + \left(\frac{1}{4}\right) \cdot \cos 12x = 0$$

$$2 \sin x \cdot \cos x \cdot 2 \sin 3x \cdot \cos 3x \cdot \cos 4x + \frac{1}{4} \cdot \cos 12x = 0$$

$$\sin 2x \cdot \sin 6x \cdot \cos 4x + \left(\frac{1}{4}\right) \cdot \cos (4+8)x = 0$$

$$\left(-\frac{1}{2}\right) [\cos(8x) - \cos(4x)] \cdot \cos 4x + \frac{1}{4} \cdot \cos(4x+8x) = 0$$

$$\left(-\frac{1}{2}\right) [\cos(8x) - \cos(4x)] \cdot \cos 4x + \frac{1}{4}$$

$$(\cos 4x \cdot \cos 8x - \sin 8x \cdot \sin 4x) = 0$$

$$2 \cos 4x \cdot \cos 4x - 2 \cos 8x \cdot \cos 4x + \cos 4x \cdot \cos 8x - \sin 8x \cdot \sin 4x = 0$$

$$\cos 4x (2 \cos 4x - 2 \cos 8x + \cos 8x) - \sin 8x \cdot \sin 4x = 0$$

$$\cos 4x (2 \cos 4x - \cos 8x) - \sin 8x \cdot \sin 4x = 0$$

$$\cos 4x (2 \cos 4x - \cos 8x) - 2 \sin 4x \cdot \cos 4x \cdot \sin 4x = 0$$

$$\cos 4x (2 \cos 4x - \cos 8x - 2 \sin 4x \cdot \sin 4x) = 0$$

$$\cos 4x = 0$$

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

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

$$2 \cos 4x - \cos 8x - 2 \sin 4x \cdot \sin 4x = 0$$

$$2 \sin^2 4x + \cos 8x - 2 \cos 4x = 0$$

$$2 \sin^2 4x + \cos^2 4x - \sin^2 4x - 2 \cos 4x = 0$$

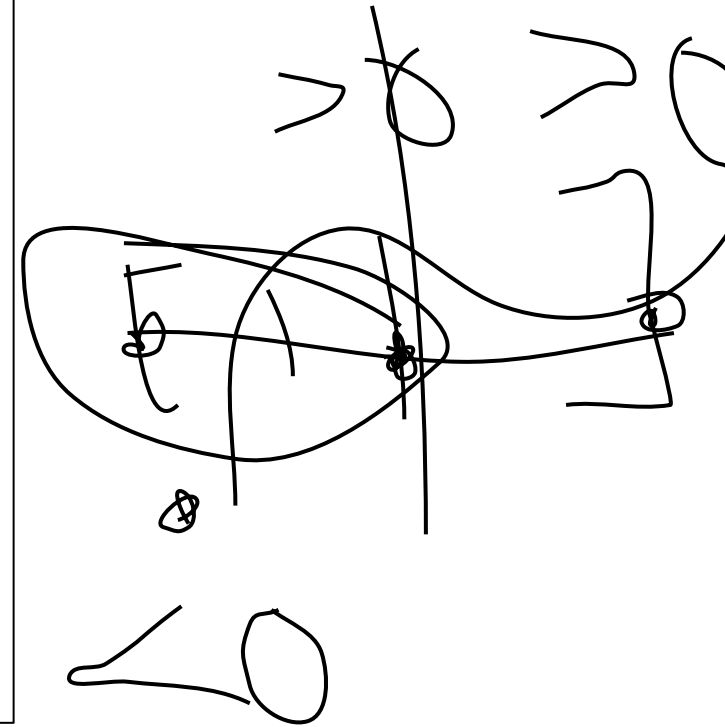
$$\sin^2 4x + \cos^2 4x - 2 \cos 4x = 0$$

$$1 - 2 \cos 4x = 0$$

$$2 \cos 4x = -1$$

$$\cos 4x = -\frac{1}{2}$$

$$4x = \pm \frac{2\pi}{3} + 2\pi k$$



Ответ: $\pm \frac{2\pi}{12} + \frac{1}{2}\pi k$;
 $\frac{\pi}{4} + \frac{\pi k}{4}$