

$$2\cos 13x + 3\cos 3x + 3\cos 5x - 8\cos x \cdot \cos^3(4x) = 0$$

$$2(\cos 13x - 4\cos x \cdot \cos^3(4x)) + 3(\cos 3x + \cos 5x) = 0$$

$$\cos^3 x = (\cos 3x + 3\cos x) / 4$$

$$2(\cos 13x - \cos x \cdot (\cos 12x + 3\cos 4x)) + 3(\cos 3x + \cos 5x) = 0$$

$$2 \cdot \cos((q+h)/2) \cdot \cos((q-h)/2)$$

$$2(\cos 13x - \cos x \cdot (\cos 12x + 3\cos 4x)) + 6 \cdot \cos(4x) \cdot \cos x = 0$$

$$\cos 13x - \cos x \cdot (\cos 12x + 3\cos 4x) + 3\cos 4x \cdot \cos x = 0$$

$$\cos x(3\cos 4x - \cos 12x - 3\cos 4x) + \cos 13x = 0$$

$$\cos 13x - \cos x \cdot \cos 12x = 0$$

$$\cos x \cdot \cos y = (\cos(x+y) + \cos(x-y)) / 2$$

$$\cos 13x - (\cos 13x + \cos 11x) / 2 = 0$$

$$2\cos 13x - \cos 13x - \cos 11x = 0$$

$$\cos 13x - \cos 11x = 0$$

$$\cos q - \cos h = -2 \cdot \sin((q+h)/2) \cdot \sin((q-h)/2)$$

$$\sin 12x \cdot \sin x = 0$$

$$\sin 12x = 0$$

$$12x = Pn$$

$$x = Pn / 12$$

$$\sin x = 0$$

$$x = Pn$$

Ответ: $Pn / 12$

$$\sin 2x \cdot \sin 6x \cdot \cos 4x + (1/4) \cdot \cos 12x = 0$$

$$\cos 3x = 4\cos^3 x - 3\cos x$$

$$\sin 2x \cdot \sin 6x \cdot \cos 4x + \cos^3 4x - 3/4 \cdot \cos 4x = 0$$

$$\cos 4x(\sin 2x \cdot \sin 6x + \cos^2 4x - 3/4) = 0$$

$$\cos 4x = 0$$

$$4x = P/2 + Pn$$

$$x = P/8 + Pn/4$$

$$\sin 2x \cdot \sin 6x + \cos^2 4x - 3/4 = 0$$

$$\cos^2 x = (\cos 2x + 1) / 2$$

$$\sin x \cdot \sin y = (\cos(x-y) - \cos(x+y)) / 2$$

$$(\cos 4x - \cos 8x) / 2 + (\cos 8x + 1) / 2 - 3/4 = 0 \quad | \cdot 2$$

$$\cos 4x - \cos 8x + \cos 8x + 1 - 3/2 = 0$$

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

$$4x = P/3 + 2Pn$$

$$x = P/12 + Pn/2$$

$$4x = 5P/3 + 2Pn$$

$$x = 5P/12 + Pn/2$$

Ответ: $P/8 + Pn/4$; $P/12 + Pn/2$; $5P/12 + Pn/2$