

$$2\sqrt{3}\sin 5x - \sqrt{3}\sin x = \cos 24x \cdot \cos x + 2\cos 5x - 6$$

$$2\sqrt{3}\sin 5x - 2\cos 5x = \sqrt{3}\sin x + \cos 24x \cdot \cos x - 6$$

$$\sqrt{16}(\sin 5x \cdot \frac{2\sqrt{3}}{\sqrt{16}} - \cos 5x \cdot \frac{2}{\sqrt{16}}) = \sqrt{(3 + \cos^2 24x)}(\sin x \cdot \sqrt{\frac{3}{(3 + \cos^2 24x)}}) + (\cos x \cdot \cos 24x / \sqrt{(3 + \cos^2 24x)}) - 6$$

$$\cos a = \frac{2\sqrt{3}}{\sqrt{16}} = \frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{2}$$

$$\sin a = \frac{2}{\sqrt{16}} = \frac{2}{4} = \frac{1}{2}$$

$$a = \pi/6$$

$$\cos b = \sqrt{\frac{3}{(3 + \cos^2 24x)}}$$

$$\sin b = \cos 24x / \sqrt{(3 + \cos^2 24x)}$$

$$\sqrt{16}(\sin 5x \cdot \cos a - \cos 5x \cdot \sin a) = \sqrt{(3 + \cos^2 24x)}(\sin x \cdot \cos b + \cos x \cdot \sin b) - 6$$

$$4(\sin(5x - \pi/6)) = \sqrt{(3 + \cos^2 24x)}(\sin(x + b)) - 6$$

$$\max(4(\sin(5x - \pi/6))) = 4$$

$$\max(\sqrt{(3 + \cos^2 24x)}(\sin(x + b)) - 6) = -4$$

$$\min(4(\sin(5x - \pi/6))) = -4$$

$$\min(\sqrt{(3 + \cos^2 24x)}(\sin(x + b)) - 6) = -8$$

$$4\sin((5x - \pi/6)) = -4$$

$$5x - \pi/6 = 3\pi/2 + 2\pi k$$

$$5x = 3\pi/2 + \pi/6 + 2\pi k$$

$$5x = 10\pi/6 + 2\pi k$$

$$x = 2\pi/6 + 2\pi k/5$$

$$x = \pi/3 + 2\pi k/5$$

$$x_1 = \pi/3 + 2\pi k \quad \cos 24(\pi/3 + 2\pi k) \cdot \cos(\pi/3 + 2\pi k) + \sqrt{3}\sin(5\pi/3 + 2\pi k) - 6 = 1 \cdot \frac{1}{2} - \sqrt{3} \cdot \frac{\sqrt{3}}{2} - 6 = \frac{1}{2} - \frac{3}{2} - 6 = -7$$

$$x_2 = 11\pi/15 + 2\pi k \quad \cos 24(11\pi/15 + 2\pi k) \cdot \cos(11\pi/15 + 2\pi k) + \sqrt{3}\cos(11\pi/15 + 2\pi k) - 6 = \cos(88\pi/5) \cdot \cos(11\pi/15) + \sqrt{3}\sin(11\pi/15) - 6 =$$

$$x_3 = 17\pi/15 + 2\pi k$$

$$x_4 = 23\pi/15 + 2\pi k$$

$$x_5 = 29\pi/15 + 2\pi k$$

