

$$\sin 5x \cdot \cos 3x = \sin 6x \cdot \cos 2x$$

$$\frac{1}{2}(\sin(5x+3x) + \sin(5x-3x)) = \frac{1}{2}(\sin(6x+2x) + \sin(6x-2x))$$

$$\frac{1}{2}(\sin(8x) + \sin(2x)) = \frac{1}{2}(\sin(8x) + \sin(4x))$$

$$\sin(8x) + \sin(2x) = \sin(8x) + \sin(4x)$$

$$\sin 2x = \sin 4x$$

$$\sin 2x = 2 \sin 2x \cos 2x$$

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

$$\sin 2x = 0$$

$$2x = \pi k$$

$$x = \pi k / 2$$

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

$$2 \cos 2x = 1$$

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

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

$$x = (\pm \pi / 3 + 2\pi k) / 2$$