

30

$$2\sin^2 x - 4\sin x \cos x + 4\cos^2 x = 1 \quad /: \cos^2 x \neq 0$$

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

$$2\tan^2 x - 4\tan x + 4 = \tan^2 x + 1$$

$$\tan^2 x - 4\tan x + 3 = 0$$

$$\frac{1}{\cos^2 x} = 1 + \tan^2 x$$

$$\tan x_{1,2} = \frac{4 \pm 2}{2} = \begin{matrix} 3 \\ 1 \end{matrix}$$

$\tan \rightarrow$ תחנות חצי/רביע

$$\tan x = 3$$

$$\tan x = 1$$

$$\tan x = \tan 71.56$$

$$\tan x = \tan 45$$

$$x = 71.56 + 180k$$

$$x = 45 + 180k$$

6 $\sin 5x \cos x + \cos 5x \sin x = \sqrt{2} \cos x \sin 6x$

$$\sin(5x+x) = \sqrt{2} \cos x \sin 6x$$

$$\sin 6x = \sqrt{2} \cos x \sin 6x$$

$$\sin 6x(1 - \sqrt{2} \cos x) = 0$$

$$\sin 6x = 0$$

$$1 - \sqrt{2} \cos x = 0$$

$$6x = 360k$$

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

$$|x_1 = 60k|$$

$$\cos x = 1/\sqrt{2}$$

$$6x = 180 + 360k$$

$$\cos x = \cos 45$$

$$|x_2 = 30 + 60k|$$

$$|x = \pm 45 + 360k|$$

11

$$2\cos x = \cos(x-60)$$

$$2\cos x = \cos x \cos 60 + \sin x \sin 60$$

$$2\cos x = \frac{1}{2}\cos x + \frac{\sqrt{3}}{2}\sin x$$

$$1\frac{1}{2}\cos x = \frac{\sqrt{3}}{2}\sin x / \frac{\sqrt{3}}{2}\cos x$$

$$\sqrt{3} = \tan x$$

$$\tan x = \tan 60$$

$$x = 60 + 180k$$

8

$$\cos^2 x - \sin^2 x = \cos 3x$$

$$\cos^2 x - \sin^2 x = \cos 2x$$

$$\cos 2x = \cos 3x$$

$$2x = 3x + 360k$$

$$2x = -3x + 360k$$

$$-x = 360k$$

$$5x = 360k$$

$$x = 360k$$

$$x = 72k$$