

Warm-up

Solve the following Trig Equations

1. $\sin^2 x - \frac{1}{4} = 0$

2. $\tan^4 x - \tan^2 x = 0$

3. $4\cos^2 x + 2\cos x - 2 = 0$

4. $2\cos^3 x + \cos^2 x - \cos x = 0$

Warm-up

Solve the following Trig Equations

1. $\sin^2 x - \frac{1}{4} = 0$ $x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

2. $\tan^4 x - \tan^2 x = 0$ $x = 0, \frac{\pi}{4}, \frac{3\pi}{4}, \pi, \frac{5\pi}{4}, \frac{7\pi}{4}$

3. $4\cos^2 x + 2\cos x - 2 = 0$ $x = \frac{\pi}{3}, \pi, \frac{5\pi}{3}$

4. $2\cos^3 x + \cos^2 x - \cos x = 0$ $x = \frac{\pi}{3}, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, \frac{5\pi}{3}$

Homework

2) Both x values work

6) Both x values work

7) $2\pi/3, 4\pi/3$

9) $\pi/6, 11\pi/6$

17) $\pi/3, 2\pi/3, 4\pi/3, 5\pi/3$

23) $\pi n, \pi/6 + \pi n, 5\pi/6 + \pi n$

24) $\pi/2 + \pi n, 2\pi/3 + 2\pi n, 4\pi/3 + 2\pi n$

More Trig Solving...

Solve for $[0, 2\pi)$; and all answers

$$u = 2x$$

$$\sin(2x) = 1/2$$

$$\sin(u) = 1/2$$

$$\frac{2x}{2} = \frac{\pi}{6} + \frac{2\pi n}{2}$$

$$\frac{2x}{2} = \frac{5\pi}{6} + \frac{2\pi n}{2}$$

$$\frac{\pi}{12}, \frac{13\pi}{12}, \frac{5\pi}{12}, \frac{17\pi}{12}$$

$$x = \frac{\pi}{12} + \pi n$$
$$x = \frac{5\pi}{12} + \pi n$$

More Trig Solving...

Solve for $[0, 2\pi)$; and all answers

$\cot^2(2x) = 1$

$\cot(u) = \pm 1$

$x = \frac{\pi}{8}, \frac{3\pi}{8}, \frac{5\pi}{8}, \frac{7\pi}{8}, \frac{9\pi}{8}, \frac{11\pi}{8}, \frac{13\pi}{8}, \frac{15\pi}{8}$

$u = 2x$
 $u = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

$2x = \frac{\pi}{2} + 2\pi n$

$2x = \frac{3\pi}{2} + 2\pi n$

$2x = \frac{5\pi}{2} + 2\pi n$

$2x = \frac{7\pi}{2} + 2\pi n$

$x = \frac{\pi}{8} + \pi n$
 $x = \frac{3\pi}{8} + \pi n$
 $x = \frac{5\pi}{8} + \pi n$
 $x = \frac{7\pi}{8} + \pi n$

$x = \frac{\frac{\pi}{4} + \frac{\pi n}{2}}{2}$
 $x = \frac{\pi}{8} + \frac{\pi n}{4}$

More Trig Solving...

Solve for $[0, 2\pi)$; and all answers

$$\tan(4x) = 0 \quad u = 0, \pi, 2\pi$$

$$\frac{4x}{4} = \frac{0}{4} + \frac{2\pi}{4}n$$

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

$$x = 0 + \frac{\pi}{2}n$$

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

$$x = 0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}$$

$$\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$$