

① $10 \cos(x) + 2 = -3$

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⊛ Isolate

$\Rightarrow 10 \cos(x) = -5$

$\Rightarrow \cos(x) = \frac{-5}{10} = -\frac{1}{2}$

⊛ Quadrant Check:

QII QIII

⊛ Reference Angle

$x_R = \pi/3$



⊛ Solve:

$x = 2\pi/3; x = 4\pi/3$

②. $2 \sin(x) = 1$

⊛ Isolate

$\sin(x) = 1/2$

⊛ Quad. Check:

QI QII

⊛ Ref. x:

$x_R = \pi/6$

⊛ Solve:

$x = \pi/6; x = 5\pi/6$

③. $\tan(x) + 1 = 0$

⊛ Isolate:

$\tan(x) = -1$

⊛ Quad. Check:

QII QIII

⊛ Ref. x:

$x_R = \pi/4$

⊛ Solve:

$x = 3\pi/4; x = 7\pi/4$

④ $4 \cos^2(x) - 10 = -7$

① Isolate:

$\Rightarrow 4 \cos^2(x) = 3$

$\Rightarrow \cos^2(x) = \frac{3}{4}$

$\Rightarrow \cos(x) = \pm \sqrt{\frac{3}{4}} = \pm \frac{\sqrt{3}}{2}$

② Quadrant Check:

ALL 4

③ Ref. x: $\pi/6$

④ Solve:

$x = \pi/6; x = 5\pi/6;$
 $x = 7\pi/6; x = 11\pi/6$

⑤ $3 \tan^2(x) + 1 = 4$

① Isolate:

$\Rightarrow 3 \tan^2(x) = 3$

$\Rightarrow \tan^2(x) = 1$

$\Rightarrow \tan(x) = \pm 1$

② Quadrant check:

ALL 4

③ Ref x:

$x_R = \pi/4$

④ Solve:

$x = \pi/4; x = 3\pi/4$

$x = 5\pi/4; x = 7\pi/4$

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⑥ $4 \cos^2(x) - 2 = 0$

① Isolate:

$\Rightarrow 4 \cos^2(x) = 2$

$\Rightarrow \cos^2(x) = \frac{1}{2}$

$\Rightarrow \cos(x) = \pm \sqrt{\frac{1}{2}} = \pm \frac{\sqrt{2}}{2}$

② Quad. Check:

ALL 4

③ Ref x:

$x_R = \pi/4$

④ Solve:

$x = \pi/4; x = 3\pi/4$

$x = 5\pi/4; x = 7\pi/4$

⑦ NOTE = THIS SHOULD BE:

$3 \tan^2(x) - 1 = 0$

① Isolate

$\Rightarrow 3 \tan^2(x) = 1$

$\Rightarrow \tan^2(x) = \frac{1}{3}$

$\Rightarrow \tan(x) = \pm \sqrt{\frac{1}{3}} = \pm \frac{1}{\sqrt{3}}$

② Quad Check:

ALL 4

③ Ref x: $x_R = \pi/6$

④ Solve

$x = \pi/6; x = 5\pi/6$

$x = 7\pi/6; x = 11\pi/6$

$\frac{(2-x)(1+x)}{8+x}$

③ $2 \cos(\theta) = 1$

④ $x = \cos \theta$

$\cos(\theta) = \frac{1}{2}$

⑤ Check check

⑥ $\frac{\pi}{3}, \frac{5\pi}{3}$

⑦ $x = \frac{1}{2}$

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

⑧ $\frac{\pi}{3}, \frac{5\pi}{3}$

$x = \frac{\pi}{3}; x = \frac{5\pi}{3}$

③ $2 \cos(\theta) + \sqrt{3} = 0$

④ $x = \cos \theta$

$2 \cos(\theta) + \sqrt{3} = 0$

$\cos(\theta) = -\frac{\sqrt{3}}{2}$

⑤ Check check

⑥ $\frac{2\pi}{3}, \frac{4\pi}{3}$

⑦ $x = -\frac{\sqrt{3}}{2}$

$x = -\frac{\sqrt{3}}{2}$

⑧ $\frac{2\pi}{3}, \frac{4\pi}{3}$

$x = \frac{2\pi}{3}; x = \frac{4\pi}{3}$

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③ $\tan^2(\theta) - 3 = 0$

④ $x = \tan \theta$

$\tan^2(\theta) = 3$

$\tan(\theta) = \pm \sqrt{3}$

⑤ Check check

Ans 4

⑥ $\frac{\pi}{3}, \frac{2\pi}{3}$

$x = \frac{\pi}{3}$

⑦ $x = \frac{\pi}{3}; x = \frac{2\pi}{3}$

$x = \frac{4\pi}{3}; x = \frac{5\pi}{3}$

$x = \frac{4\pi}{3}; x = \frac{5\pi}{3}$

③ $2 \cos(\theta) + \sqrt{3} = 0$

④ $x = \cos \theta$

$2 \cos(\theta) + \sqrt{3} = 0$

$\cos(\theta) = -\frac{\sqrt{3}}{2}$

⑤ Check check

Ans 4

⑥ $\frac{2\pi}{3}, \frac{4\pi}{3}$

$x = \frac{2\pi}{3}; x = \frac{4\pi}{3}$

$x = \frac{2\pi}{3}; x = \frac{4\pi}{3}$

⑦ $x = \frac{2\pi}{3}; x = \frac{4\pi}{3}$

$x = \frac{2\pi}{3}; x = \frac{4\pi}{3}$