SOLVING TRIG EQUATIONS

$2\sin^2 x + 5\sin x - 3 = 0$ $\qquad [0, 2\pi)$

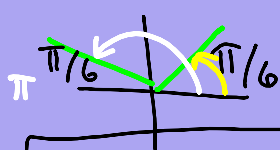
$(2\sin x - 1)(\sin x + 3) = 0$

$2x^2 + 5x - 3 = 0$

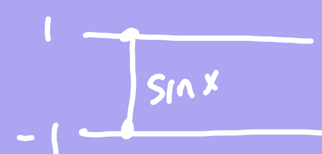
$(2x - 1)(x + 3)$

$2\sin x - 1 = 0 \qquad \sin x + 3 = 0$

$\sin x = +1/2 \qquad \cancel{\sin x = -3}$



$\boxed{\frac{\pi}{6},\ \frac{5\pi}{6}}$



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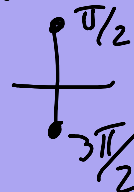
$\sec\theta = 2\cos\theta + 1$

$[0, 2\pi)$ (What if $(-\infty, \infty)$)

$\cos\theta \left[\dfrac{1}{\cos\theta} = 2\cos\theta + 1\right]$

$\boxed{\theta \neq \frac{\pi}{2}, \frac{3\pi}{2}}$

$\cos\theta = 0$

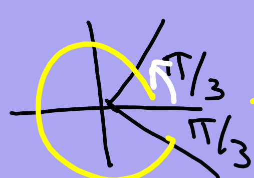


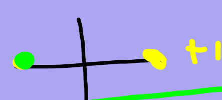
$1 = 2\cos^2\theta + \cos\theta$

$0 = 2\cos^2\theta + \cos\theta - 1$

$(2\cos\theta - 1)(\cos\theta + 1) = 0$

$\cos\theta = \frac{1}{2} \qquad \cos\theta = -1$





$\boxed{\theta = \frac{\pi}{3}, \frac{5\pi}{3}, \pi}$

$\dfrac{1}{-2} = 2 + \dfrac{3}{x+4}$

Excluded values

$x \neq 2, -4$

$(-\infty, \infty)$

$\frac{\pi}{3} \pm 2\pi n$

$\frac{5\pi}{3} \pm 2\pi n$

$\pi \pm 2\pi n$

$12\cot^2\theta - 5\cot\theta - 3 = 0 \qquad [0^\circ, 360^\circ)$

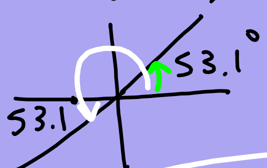
$(4\cot\theta - 3)(3\cot\theta + 1) = 0$

$\cot\theta = \frac{3}{4} \qquad \cot\theta = \frac{-1}{3}$

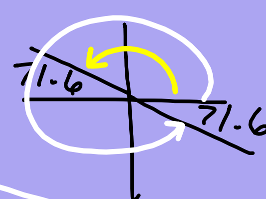
$\sin A = \frac{20}{37}$

$\sin^{-1}(20/37)$

$\cot^{-1}(3/4) = 53.1$



$\cot^{-1}(1/3) = 71.6$

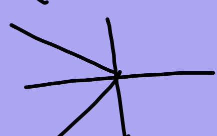


$53.1^\circ,\ 233.1^\circ$

$108.4^\circ,\ 288.4^\circ$

$\cos\theta = -2/3$

$\cos^{-1}(-2/3) = 131.8^\circ$



$$\sin^2\theta + \cos\theta = 0 \qquad [0^\circ, 360^\circ)$$

$$1 - \cos^2\theta + \cos\theta = 0$$

$$0 = \overset{a}{\cos^2\theta} - \overset{b}{\cos\theta} - \overset{c}{1}$$

$$\cancel{(\cos\theta + 1)(\cos\theta - 1)}$$

$$\sin^2\theta + \cos^2\theta = 1$$

$$\sin^2\theta = 1 - \cos^2\theta$$

$$x^2 + 2x - 5 = 0$$

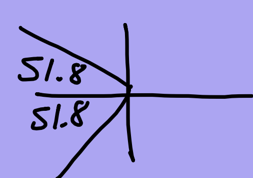
$$x = \underline{\qquad\qquad}$$

$$\cos\theta = \frac{1 \pm \sqrt{1 - 4(1)(-1)}}{2(1)}$$

$$\cos\theta = \frac{1 \pm \sqrt{5}}{2}$$

$$\cos\theta = \cancel{1.618}$$

$$\cos\theta = -0.618$$



$$\theta = 128.2^\circ, 231.8^\circ$$