Solving Trig Equations

Solve $2x - 1 = 0$

$2x = 1$

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

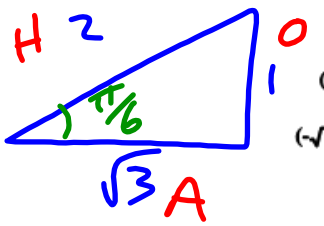
$2\sin x - 1 = 0$

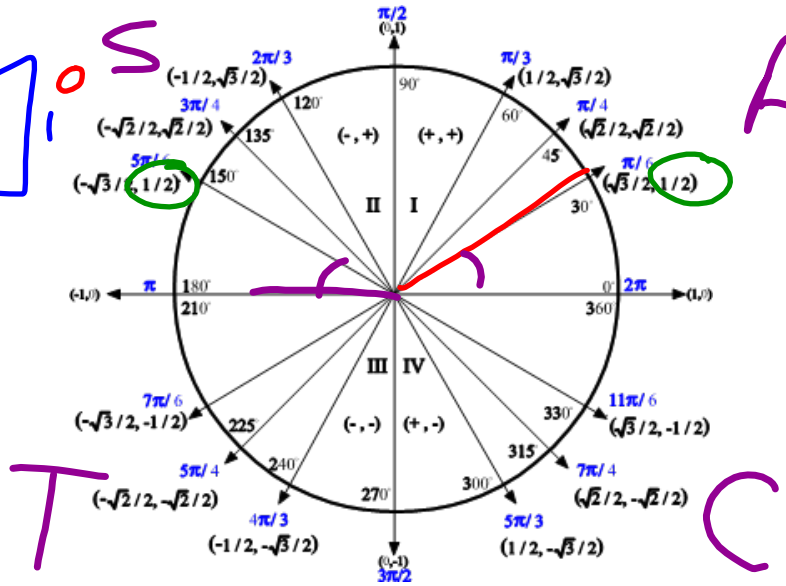
$2\sin x = 1$

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

$x = \frac{\pi}{6}$, $\pi - \frac{\pi}{6}$

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





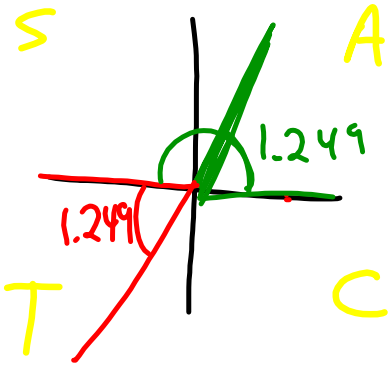
Approximate a solution

(don't worry, nobody will die)

$\tan x - 3 = 0$

$\tan x = 3$

$x = 1.249 \text{ rad}$



AND $x = \pi + 1.249$

$3\csc x + 2 = 0$

$3\csc x = -2$

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

$\csc x = \frac{1}{\sin x}$

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

$x =$ D.N.E.

Does Not Exist

FOR ANITA

Good Luck at Swimming

Sahel C.V Jaydin

Hubby (max ☺)

Ajdan Madison

Mack ☺ Joel Xander

Wassup (MaSON)

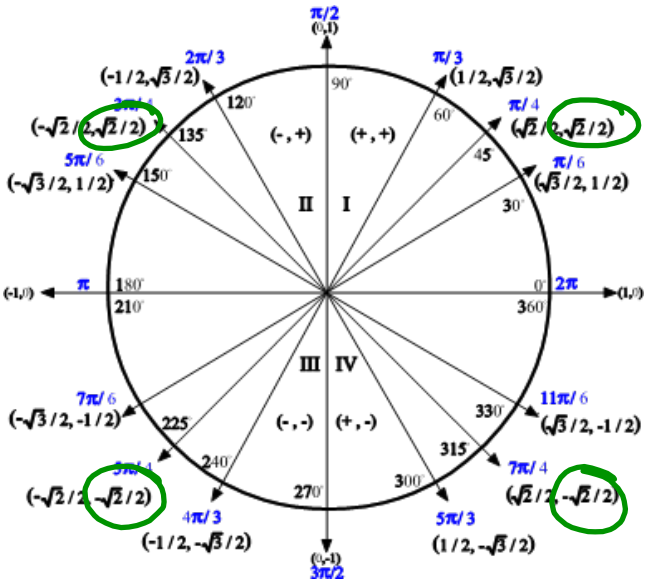
Julia Allyssaahi

MacG

$x^2 - 1 = 0$

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

$x = \pm 1$



$2\sin^2 x - 1 = 0$

$2\sin^2 x = 1$

$\sqrt{\sin^2 x} = \sqrt{\frac{1}{2}}$

$\sin x = \pm\sqrt{\frac{1}{2}}$

$\sin x = \pm\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$\sin x = \pm\frac{\sqrt{2}}{2}$

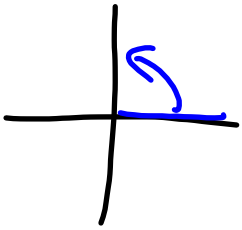
$x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

$x^2 - 6x + 5 = 0$

⊗ 5
⊕ -6

$(x-1)(x-5)=0$

$x=1 \quad x=5$



$\cos x = u$

$\cos^2 x - 6\cos x + 5 = 0$

$u^2 - 6u + 5 = 0$

$(u-5)(u-1)=0$

$u=5 \quad u=1$

$\cos x = 5 \quad \cos x = 1$

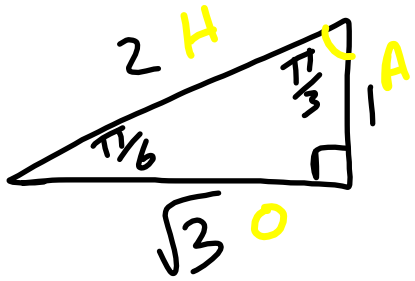
D.N.E. $x = 0, 2\pi$

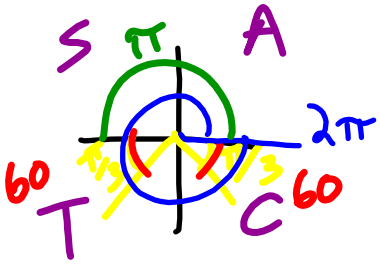
$2\sin 2x + \sqrt{3} = 0$

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

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

solve for 2x





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

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

AND

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

$= \frac{4\pi}{3}$

if $2x = \frac{5\pi}{3}$

$x = \frac{5\pi}{6}$

AND

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

$x = \frac{4\pi}{6}$

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3, 5, 7, 9, 10, 11, 14 - 19

QUIZ TOMORROW