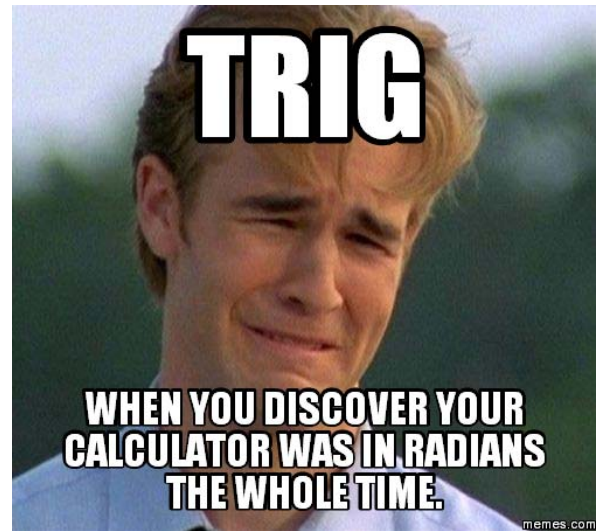


Thursday, February 9, 2017

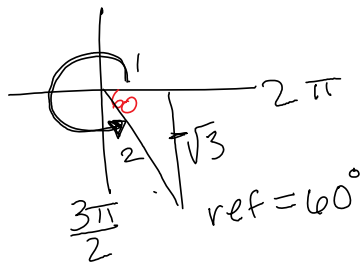
* 4.5 - Solving Equations

* HW - on Calendar/online



4.5 Solving Trig Equations

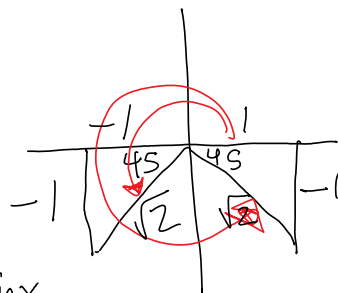
① Solve: $\cos X = \frac{1}{2}$ from $\frac{3\pi}{2} \leq x \leq 2\pi$
Q4



answer in radians

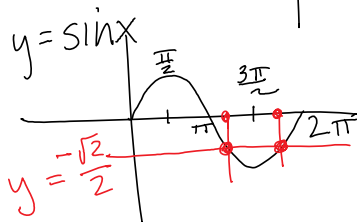
$$X = \frac{5\pi}{3}$$

② solve: $\sin X = -\frac{\sqrt{2}}{2}$ from $0 \leq x < 2\pi$
 $= -\frac{1}{\sqrt{2}}$
all 4 quads
sin neg. 3, 4



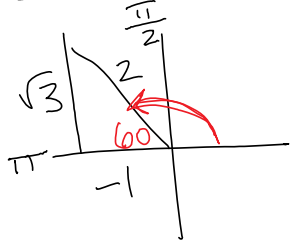
ref = $45^\circ = \frac{\pi}{4}$

$$X = \frac{5\pi}{4}, \frac{7\pi}{4}$$



③ Solve: $\tan X = 0$ from $0 \leq x < 2\pi$
 $X = 0, \pi$

④ $\sec x = -2, \quad \frac{\pi}{2} \leq x \leq \pi$

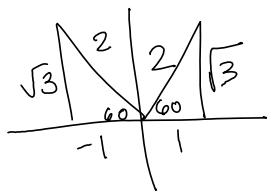


$\cos x = -\frac{1}{2}$

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

⑤ $\csc x = \frac{2\sqrt{3}}{3}, \quad 0 \leq x < 2\pi$

$\sin x = \frac{3}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$



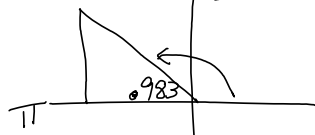
$x = \frac{\pi}{3}, \frac{2\pi}{3}$

calculator!

⑥ $\tan x = -1.5, \quad \frac{\pi}{2} \leq x \leq \pi$

ref = $\tan^{-1}(1.5)$

$\theta = .983$



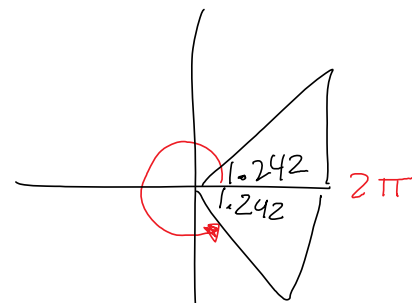
$x = \pi - \theta$

$x = \pi - .983 = 2.159$

⑦ $\sec x = 3.1, \quad 0 \leq x < 2\pi$

$\cos x = \frac{1}{3.1}$

ref = $\cos^{-1}\left(\frac{1}{3.1}\right) = 1.242$



$x = 2\pi - 1.242$

$x = 1.242, 5.041$