

$$3\sec^2 x - 2\tan^2 x - 4 = 0$$

SOLVING TRIG EQUATIONS:

$$2x = 4$$

Find THE value  
of  $x$  ...

$$x = 2$$

$$x^2 = 9$$

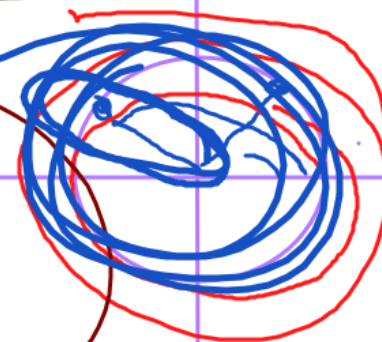
Find the TWO  
values ...

$$x = \pm 3$$

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

Find ALL values ...

Infinite many!



$$\textcircled{1} \quad \frac{\sin x - \sqrt{2}}{2} = \frac{-\sin x}{2}$$

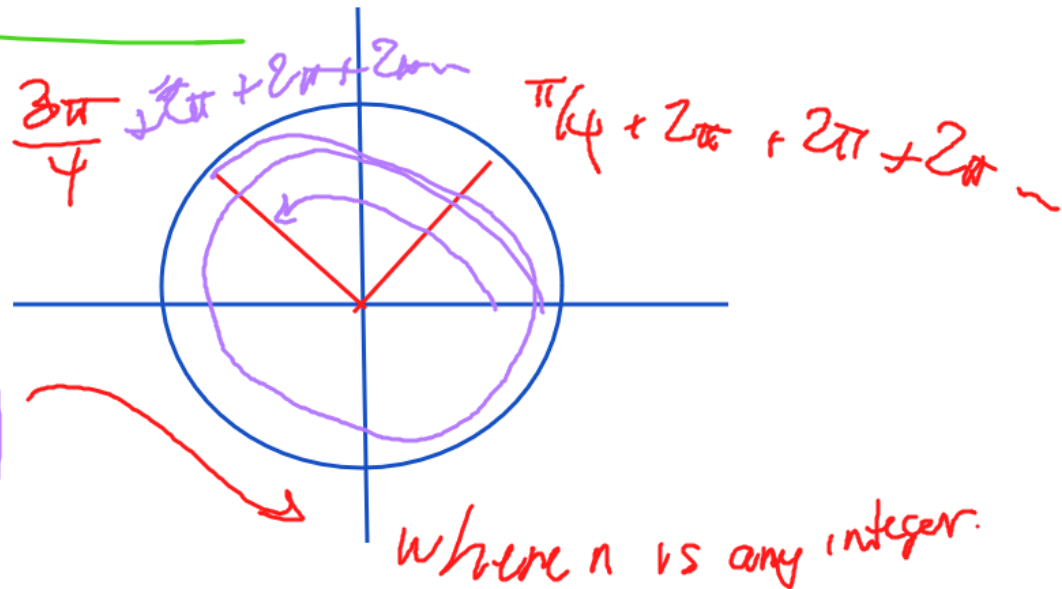
$$2 \sin x - \sqrt{2} = 0$$

$$+ \sqrt{2} \quad + \sqrt{2}$$

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

$$x = \sin^{-1}\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4} + 2\pi \cdot (n)$$

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



ZPP

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

$\sin x (\sin x - 2) = 0$

~~$\frac{\sin^2 x}{\sin x} = \frac{2\sin x}{\sin x}$~~

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

$\sin x = 0$

$\sin x - 2 = 0$

~~$\sin x = 2$~~

$\sin x = 2$   
No Sol!

$x = 2$

$x = 0$

0,  $\pi$ ,  $2\pi$ ,  $20\pi$ ,  $3\pi$ ,  $4\pi$ , ...  $100\pi$

$x = n \cdot \pi$

$$3) \quad 3 \overset{1+\tan^2 x}{\sec^2 x} - 2 \tan^2 x - 4 = 0$$

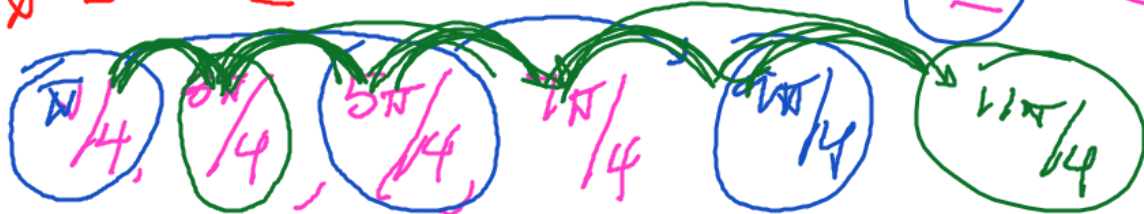
$$\rightarrow 3(1 + \tan^2 x) - 2 \tan^2 x - 4 = 0$$

$$\textcircled{3} + \underline{3 \tan^2 x} - \underline{2 \tan^2 x} - \textcircled{4} = 0$$

$$\rightarrow \underline{1 \tan^2 x} - 1 = 0$$

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

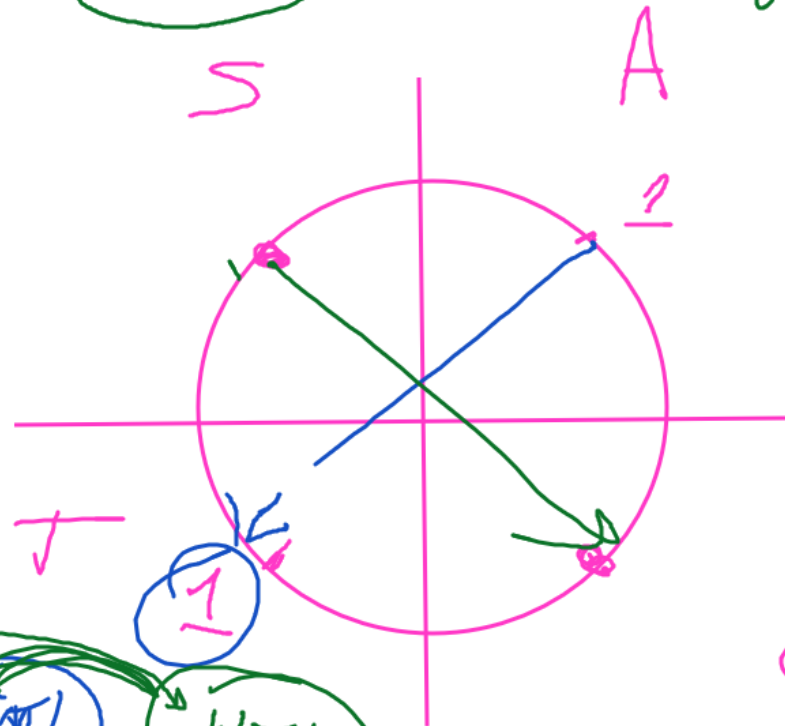
$$\tan x = \pm 1$$



$$\frac{\pi}{4} + n \cdot \pi$$

$$\frac{3\pi}{4} + n \cdot \pi$$

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



$$45. \quad 3 \tan \frac{X}{2} - \sqrt{3} = 0$$

(41)

$$\frac{3}{3} \tan \frac{X}{2} = \frac{\sqrt{3}}{3}$$

$$\tan \frac{X}{2} = \frac{\sqrt{3}}{3}$$

$$\frac{X}{2} = \frac{\frac{\pi}{6} + n \cdot \pi}{2}$$

$$X = \frac{\pi}{3} + \underline{2\pi n}$$

(E)  
9

$$24) \cos x - \frac{\cos x}{\sin x}$$

$$\frac{\cos x}{\cos x} - \frac{\sin x}{\cos x}$$

$$\Rightarrow \frac{\cos x}{\cos x - \sin x}$$

$$\frac{\cos x \cdot \cos x}{\cos x - \sin x}$$

$$\frac{\cos^2 x}{\cos x - \sin x}$$

$$\frac{\sin x \cos x}{(\sin x - \cos x)(\sin x + \cos x)}$$

$$\frac{\sin^2 x \cos x + \sin x \cos^2 x}{(\sin x - \cos x)(\sin x + \cos x)}$$

$$1 - \cos^2 x$$

$$1 - 2\cos^2 x$$

$$\frac{\cos^2 x - \cos x \sin x}{\cos x - \sin x} \cdot \frac{\cos x}{\cos x - \sin x}$$

$$\frac{\cos x \sin x}{\cos x - \sin x}$$

$$\frac{\sin x \cos x}{(\sin x - \cos x)}$$

$$\left(\frac{\cos x}{\cos x}\right) \frac{\cos x}{\sin x} - \frac{\sin x}{\cos x} \left(\frac{\sin x}{\sin x}\right) \sec x (\cos x + 2 \sin x)$$

$$1 - \sin^2 x$$

$$\frac{\cos^2 x - \sin^2 x}{\sin x \cos x} = \frac{\sec x \cos x - 2 \sin x \sec x}{\sin x \cos x}$$

$$\frac{1 - 2 \sin^2 x}{\sin x \cos x} = \left[ \frac{1}{\sin x \cos x} - \frac{2 \sin^2 x}{\sin x \cos x} \right]$$

$$\frac{\sec x \cos x - 2 \sin x \sec x}{\sin x \cos x}$$

March 31

11:30 am (5.4)

Quiz Due Monday - Web site