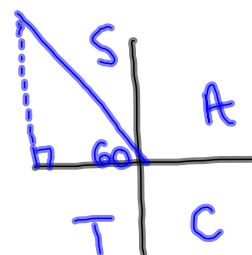
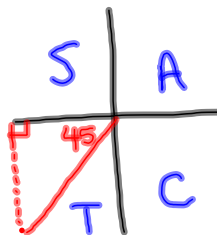


## Questions from Homework

⑥ c)  $\frac{\sin^2 225^\circ}{4 \cos 120^\circ + \sqrt{5}}$



$$\frac{\left(-\frac{1}{\sqrt{2}}\right)^2}{4\left(-\frac{1}{2}\right) + \sqrt{5}}$$

$$\frac{\frac{1}{2}}{-2 + \sqrt{5}}$$

$$\frac{1}{2} \times \frac{1}{(-2 + \sqrt{5})}$$

$$\frac{1}{-4 + 2\sqrt{5}}$$

$$\frac{1}{(2\sqrt{5} - 4)(2\sqrt{5} + 4)}$$

$$\frac{2\sqrt{5} + 4}{20 + \cancel{8\sqrt{5}} - \cancel{8\sqrt{5}} - 16}$$

$$\frac{2\sqrt{5} + 4}{4}$$

$$\boxed{\frac{\sqrt{5} + 2}{2}}$$

$$\textcircled{5} \text{ e) } \cos^2(-210^\circ) + \sin^2(-30^\circ) \csc 30^\circ$$

$$\cos^2 150^\circ + \sin^2 330^\circ \csc 30^\circ$$

$$\left(\frac{-\sqrt{3}}{2}\right)^2 + \left(\frac{-1}{2}\right)^2 (2)$$

$$\frac{3}{4} + \frac{2}{4}$$

$$\boxed{\frac{5}{4}}$$

$$\textcircled{5} \text{d)} \quad 2\cos^2\theta + 7\cos\theta = -3 \quad -360 \leq \theta \leq 360$$

$$\underline{2}\cos^2\theta + \underline{7}\cos\theta + \underline{3} = 0$$

$$\begin{array}{l} \underline{6} \times \underline{1} = 6 \\ \underline{6} + \underline{1} = 7 \end{array}$$

$$(2\cos^2\theta + 6\cos\theta)(\cos\theta + 3) = 0$$

$$2\cos\theta(\cos\theta + 3) + 1(\cos\theta + 3) = 0$$

$$(2\cos\theta + 1)(\cos\theta + 3) = 0$$

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

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

$$\cos\theta = \ominus \frac{1}{2} \quad \text{ref} = 60$$

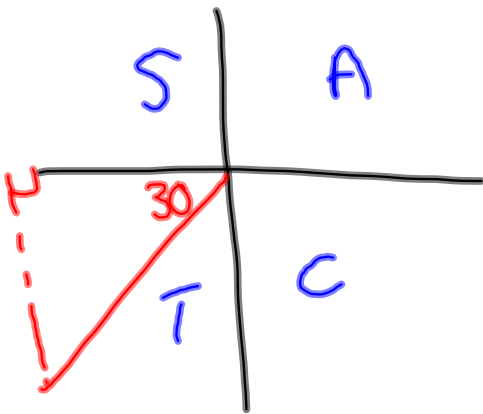
$$\begin{array}{l} \cos\theta + 3 = 0 \\ \cos\theta = -3 \end{array}$$

~~Not Possible~~

$$\theta = 120^\circ, 240^\circ$$

$$-240^\circ, -120^\circ$$

④ c)  $\sin(510^\circ)$   
PA  $210^\circ$



$$\sin(-510^\circ) = -\frac{1}{2}$$

Ex 7.7

### Questions from Homework

⑧ c)  $\cos^2 \theta = \cos \theta + 2$   $-360 \leq \theta \leq 360$

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

$$-2 \times 1 = -2$$

$$-2 + 1 = -1$$

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

~~$$\cos \theta - 2 = 0$$~~

~~$$\cos \theta = 2$$~~

~~Not Possible~~

$$\cos \theta + 1 = 0$$

$$\cos \theta = -1$$

$$\theta = 180^\circ, -180^\circ$$

① c)  $-323148^\circ$

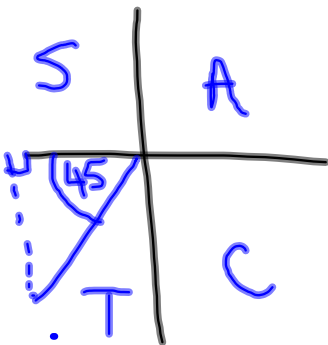
•  $-323148 \div 360 = -897.6\bar{3}$

•  $-897.6\bar{3} - (-897) = -0.6\bar{3}$

•  $-0.6\bar{3} \times 360^\circ = -228^\circ$

\* •  $-228^\circ + 360 = \boxed{132^\circ}$

④ b)  $\sec 585^\circ$   
PA ( $225^\circ$ )



$$\sec 585^\circ = -\frac{\sqrt{2}}{1} = -\sqrt{2}$$

$$\textcircled{5} \text{ d) } 2\cos^2\theta + 7\cos\theta = -3 \quad -360^\circ \leq \theta \leq 360^\circ$$

$$\underline{2}\cos^2\theta + \underline{7}\cos\theta + \underline{3} = 0 \quad \begin{array}{l} \underline{1} \times \underline{6} = 6 \\ \underline{1} + \underline{6} = 7 \end{array}$$

$$(2\cos^2\theta + \cos\theta)(6\cos\theta + 3) = 0$$

$$\cos\theta(2\cos\theta + 1) + 3(2\cos\theta + 1) = 0$$

$$(2\cos\theta + 1)(\cos\theta + 3) = 0$$

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

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

$$\cos\theta = \underline{-\frac{1}{2}} \quad \text{ref} = 60^\circ$$

$$\theta = 120^\circ, 240^\circ$$

$$-240^\circ, -120^\circ$$

~~$$\cos\theta + 3 = 0$$~~

~~$$\cos\theta = -3$$~~

~~Not Possible~~

$$\textcircled{6} \text{ a) } \frac{4}{1-3\cos 45^\circ}$$

$$\frac{4}{1-3\left(\frac{\sqrt{2}}{2}\right)}$$

$$\frac{4}{1-\frac{3\sqrt{2}}{2}}$$

$$\frac{4}{\frac{2}{2}-\frac{3\sqrt{2}}{2}}$$

$$\frac{4}{\frac{2-3\sqrt{2}}{2}}$$

$$4 \times \frac{2}{2-3\sqrt{2}}$$

$$\frac{8}{(2-3\sqrt{2})(2+3\sqrt{2})}$$

$$\frac{16+24\sqrt{2}}{4+\cancel{6\sqrt{2}}-\cancel{6\sqrt{2}}-18}$$

$$\frac{16+24\sqrt{2}}{-14}$$

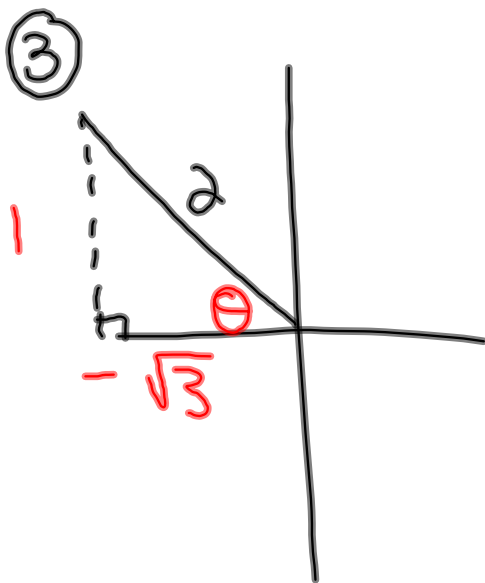
$$\frac{8+12\sqrt{2}}{-7} \quad \text{or} \quad \frac{-8-12\sqrt{2}}{7}$$

$$* -3\sqrt{2} \times 3\sqrt{2}$$

$$-9(2)$$

$$-18$$





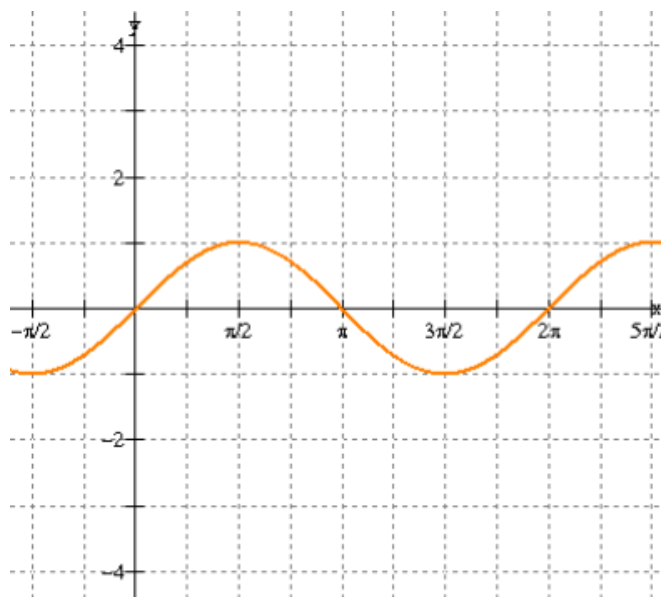
$$\tan \theta = -\frac{1}{\sqrt{3}} \quad \begin{array}{l} \text{opp} \\ \text{adj} \end{array}$$

$$c^2 = a^2 + b^2$$

## Solving Trigonometric Equations Using a Graph

$$y = \sin \theta$$

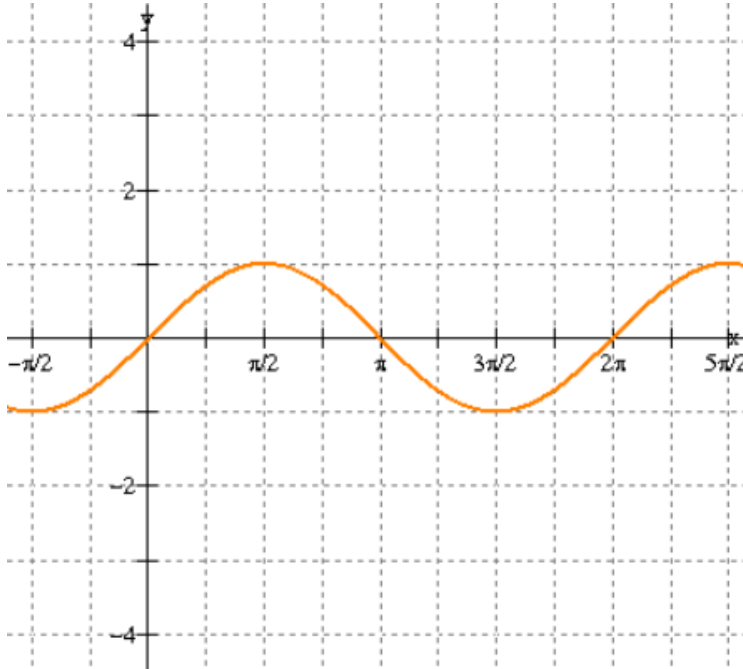
Where is  
 $\sin \theta = 1$



Where is  
 $\sin \theta = 0$

# Graphs of Other Trig Functions

$$y = \sin \theta$$



What would the graph of  $\csc \theta$  look like?

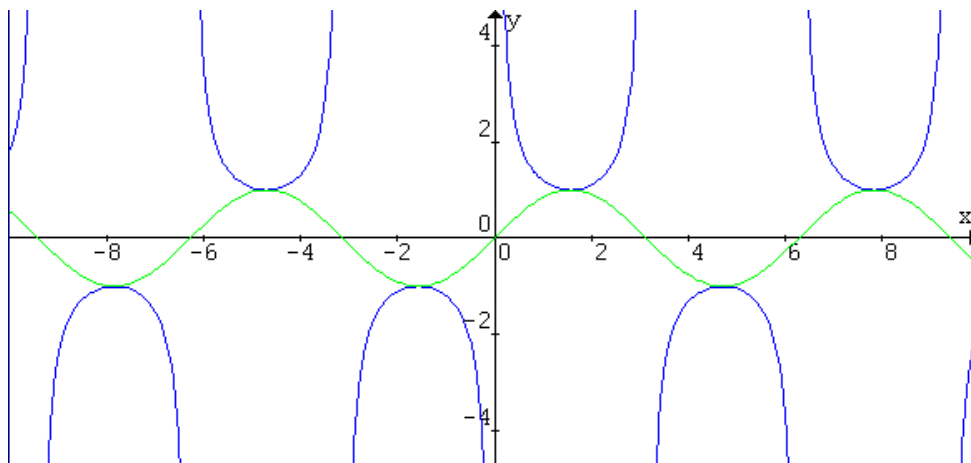
**REMEMBER:**

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

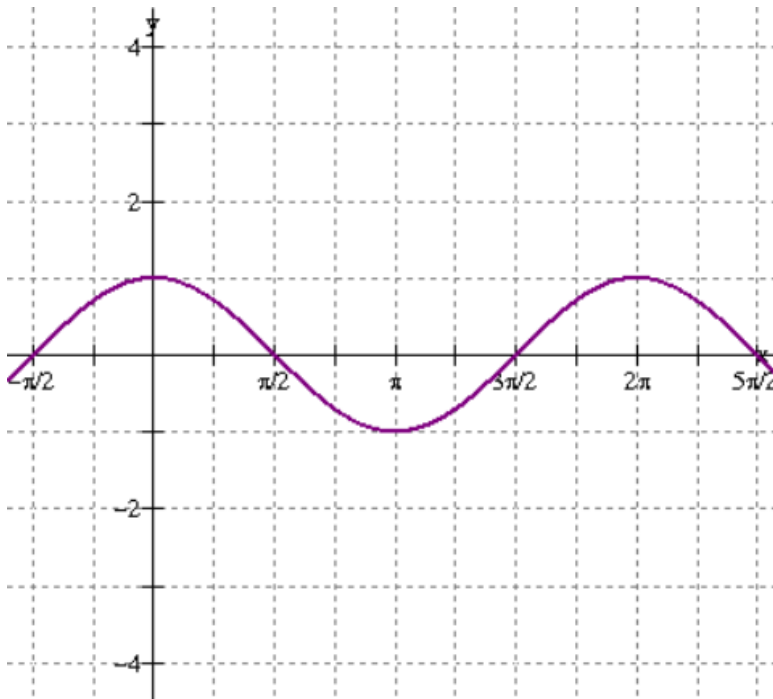
where  $\sin x = 0$ ,  
 $\csc x$  is undefined

$$y = \sin x$$

$$y = \csc x$$



$$y = \cos \theta$$



What would the graph of  $\sec \theta$  look like?

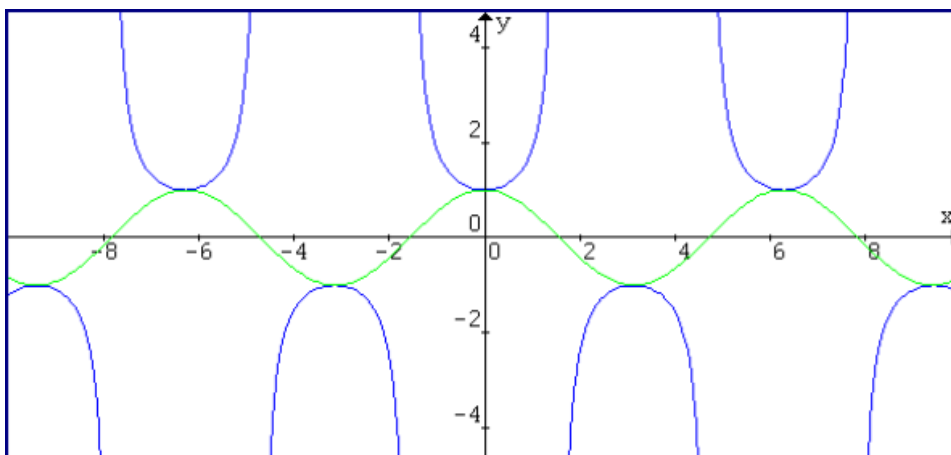
**REMEMBER:**

$$\sec \theta = \frac{1}{\cos \theta}$$

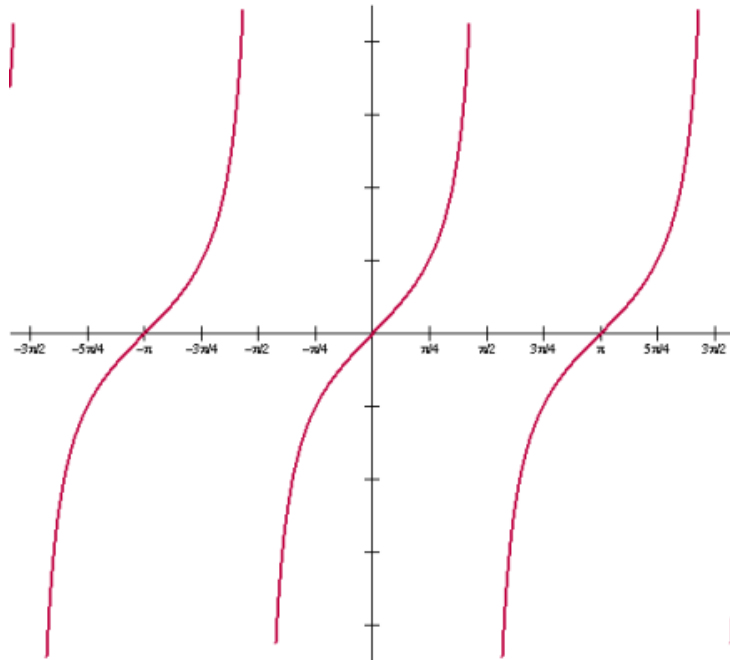
where  $\cos x = 0$ ,  
 $\sec x$  is undefined

$$y = \cos x$$

$$y = \sec x$$



$$y = \tan \theta$$



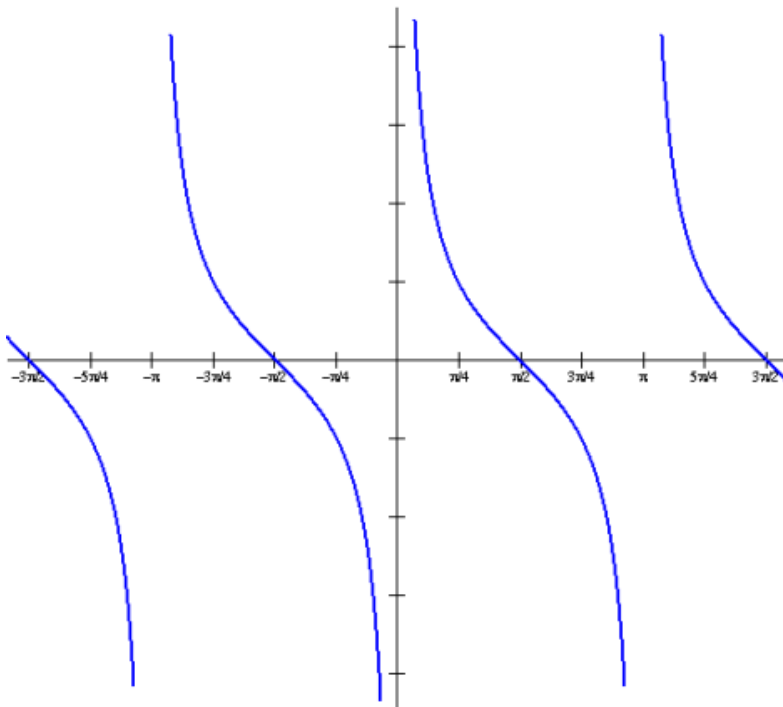
What would the graph of  $\cot \theta$  look like?

**REMEMBER:**

$$\tan x = \frac{1}{\cot x}$$

where  $\tan x = 0$ ,  
 $\cot x$  is undefined

$$y = \cot \theta$$



# Homework