

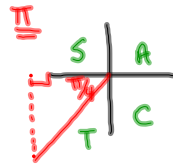
Questions from Homework

$$\textcircled{2} \text{ b) } \frac{\cos \frac{5\pi}{4}}{\sin \frac{4\pi}{3} + \cos \frac{\pi}{3}}$$

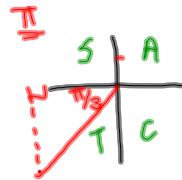
$$\frac{\left(-\frac{\sqrt{2}}{2}\right)}{\left(-\frac{\sqrt{3}}{2}\right) + \frac{1}{2}}$$

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

$$\frac{4\pi}{4}, \frac{5\pi}{4}, \frac{6\pi}{4}$$



$$\frac{3\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$$



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

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

$$\frac{-\sqrt{2}-\sqrt{6}}{1-3}$$

$$\frac{-\sqrt{2}-\sqrt{6}}{-2}$$

$$\boxed{\frac{\sqrt{2}+\sqrt{6}}{2}}$$

$$\textcircled{3} \text{ b) } \sin^2 \theta + \frac{1}{2} \sin \theta = 0 \quad 0 \leq \theta \leq 2\pi$$

$$(\sin \theta) \left(\sin \theta + \frac{1}{2} \right) = 0$$

$$\sin \theta = 0$$

$$\boxed{\theta = 0, \pi, 2\pi}$$

$$\sin \theta + \frac{1}{2} = 0$$

$$\sin \theta = -\frac{1}{2} \quad \text{ref} \theta = \frac{\pi}{6}$$

Quad 3

$$\theta = \pi + \frac{\pi}{6}$$

Quad 4

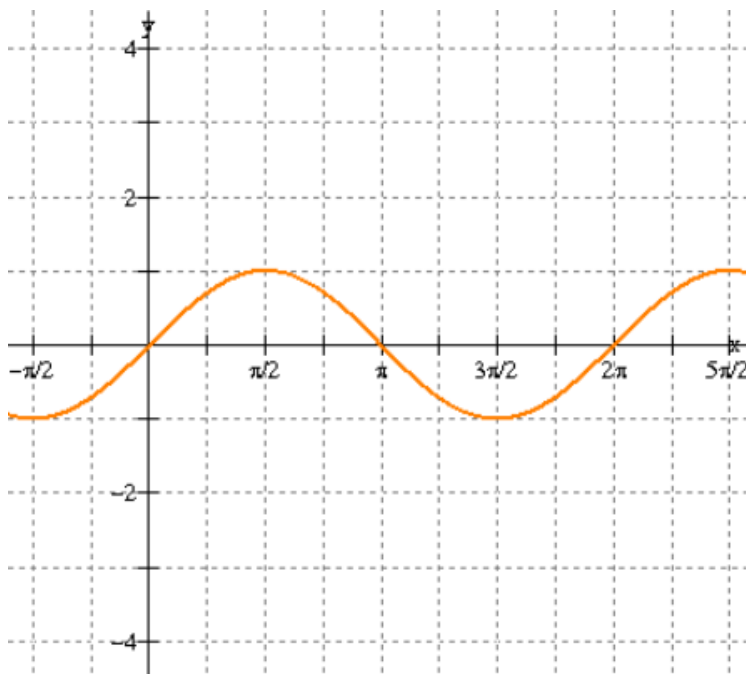
$$\theta = 2\pi - \frac{\pi}{6}$$

$$\theta = \frac{7\pi}{6}$$

$$\theta = \frac{11\pi}{6}$$

Graphs of Other Trig Functions

$$y = \sin \theta$$



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

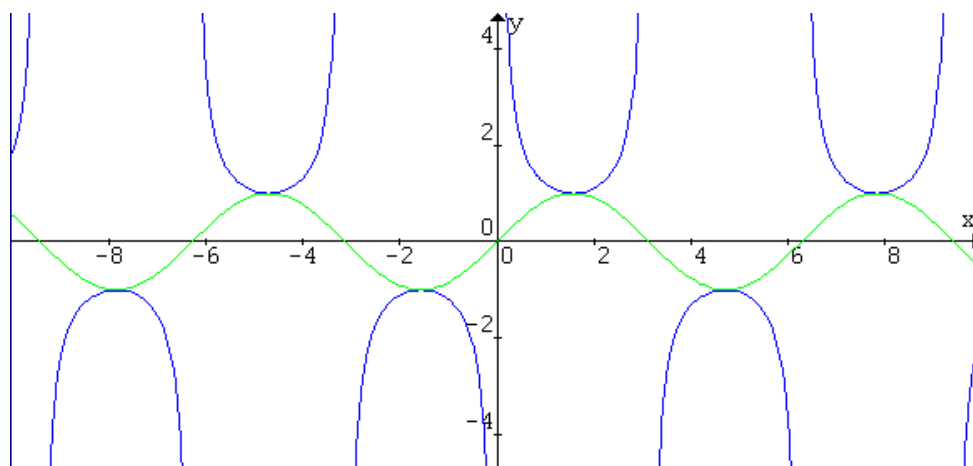
REMEMBER:

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

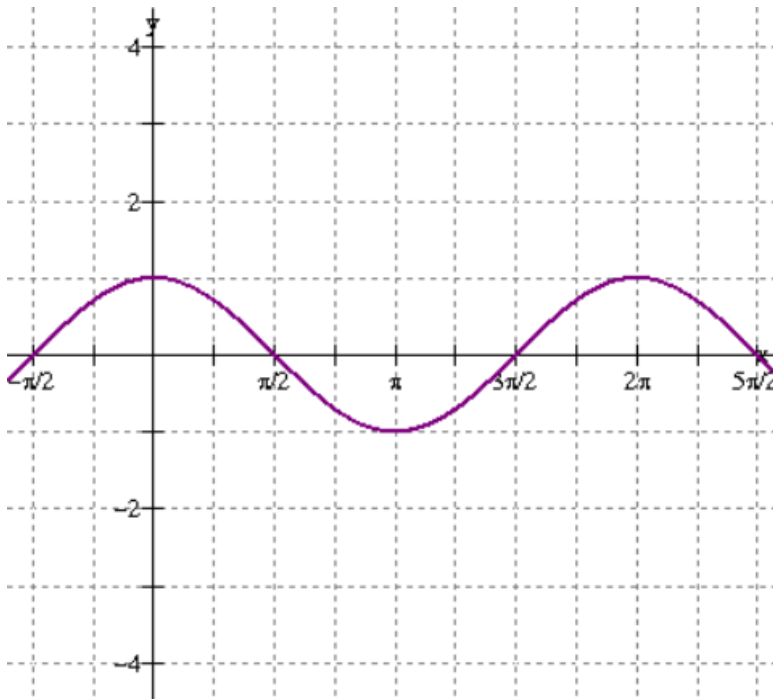
where $\sin x = 0$,
 $\csc x$ is undefined

$$y = \sin x$$

$$y = \csc x$$



$$y = \cos \theta$$



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

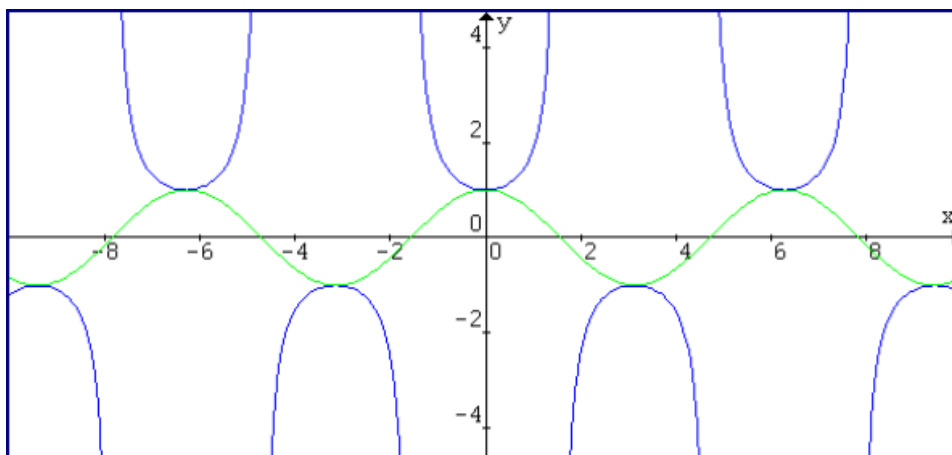
REMEMBER:

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

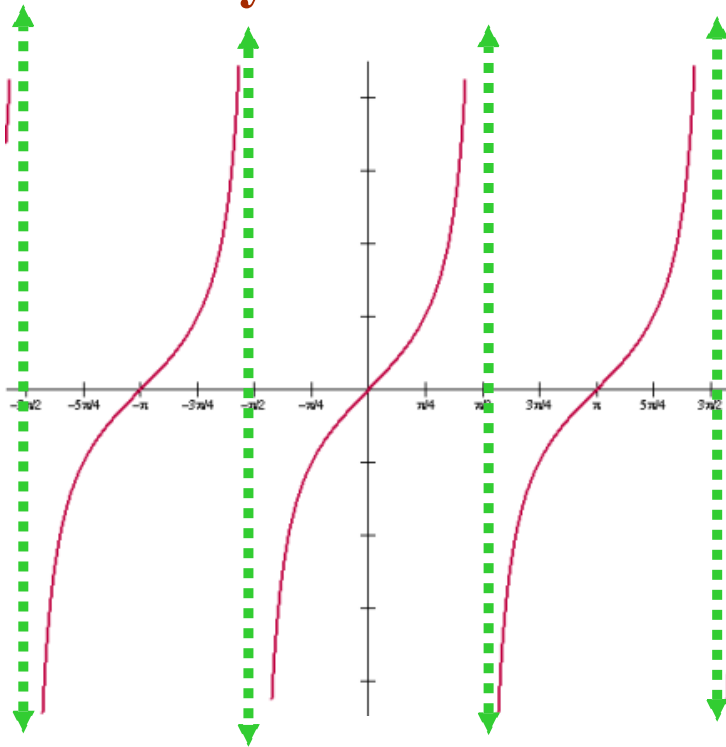
where $\cos x = 0$,
 $\sec x$ is undefined

$$y = \cos x$$

$$y = \sec x$$



$$y = \tan \theta$$



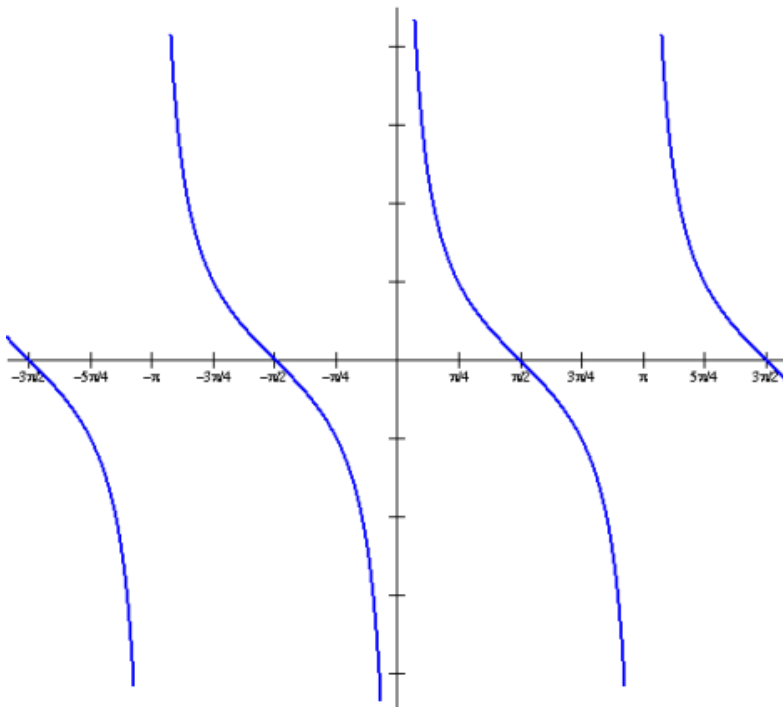
What would the graph of $\cot \theta$ look like?

REMEMBER:

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

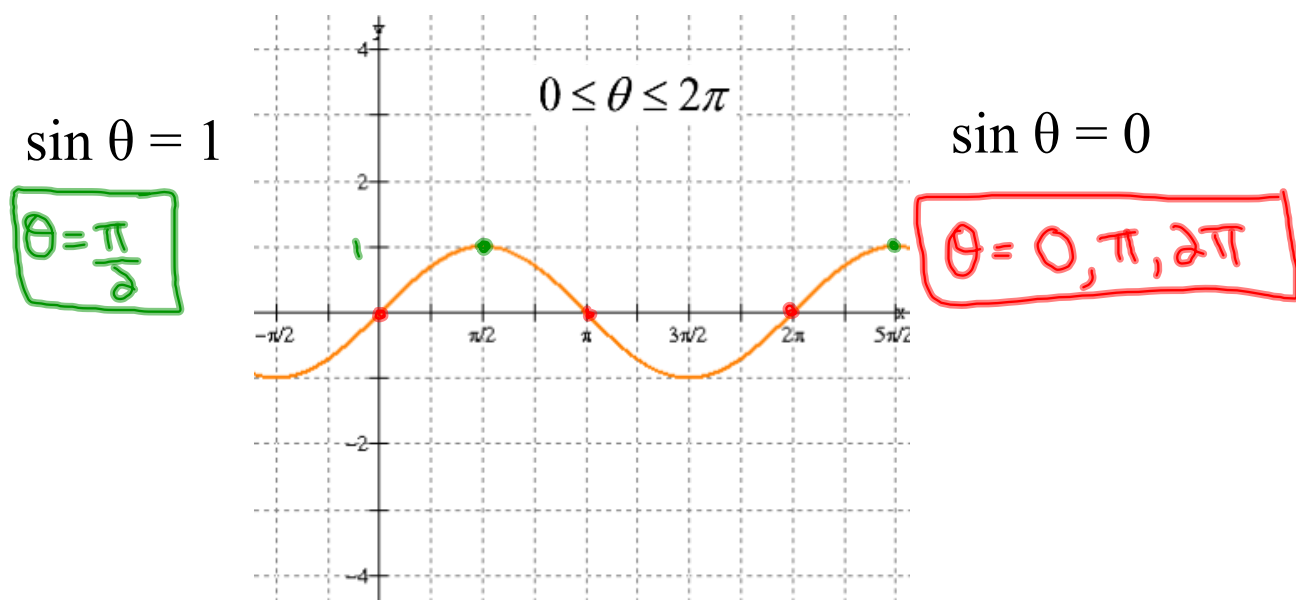
where $\tan x = 0$,
 $\cot x$ is undefined

$$y = \cot \theta$$



Solving Trigonometric Equations Using a Graph

$$y = \sin \theta$$



Solving Trigonometric Equations

$$3 \left(\frac{\sin^2 x}{\cos^2 x} \right) = \frac{\cos^2 x}{\cos^2 x} \quad 0 \leq x \leq 2\pi$$

$$3 \tan^2 x = 1$$

$$\tan^2 x = \frac{1}{3}$$

$$\tan x = \pm \frac{1}{\sqrt{3}} \quad \text{ref } \theta = \frac{\pi}{6}$$

$$\theta = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$$

$$\cos^2 x - \sin^2 x = \sin x \quad -2\pi \leq x \leq 2\pi$$

$$(1 - \sin^2 x) - \sin^2 x = \sin x$$

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

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

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

$$2\sin^2 x + \sin x - 1 = 0 \quad \begin{array}{l} -1 \times 2 = -2 \\ -1 + 2 = 1 \end{array}$$

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

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

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

$$2\sin x - 1 = 0 \quad \sin x + 1 = 0$$

$$\sin x = \frac{1}{2} \quad \text{ref} = \frac{\pi}{6} \quad \sin x = -1$$

$$\begin{array}{l} x = \frac{\pi}{6}, \frac{5\pi}{6} \\ -\frac{11\pi}{6}, -\frac{7\pi}{6} \end{array}$$

$$\begin{array}{l} x = \frac{3\pi}{2} \\ -\frac{\pi}{2} \end{array}$$

← Not a solution

Homework