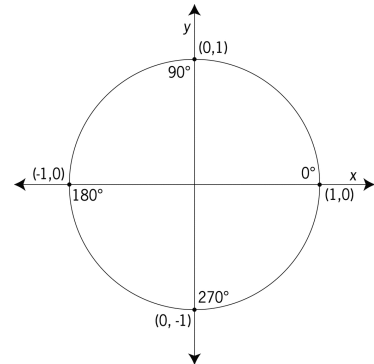


Trig Function	Reciprocal Trig Function	Inverse Trig Function
$\sin \theta = \frac{\textit{opposite}}{\textit{hypoteneuse}} = y$	$\csc \theta = \frac{\textit{hypoteneuse}}{\textit{opposite}} = \frac{1}{y}$	$\textit{Sin}^{-1}x = \textit{arcsinx}$ ="The angle between $-90^\circ$ and $90^\circ$ whose sine is x."
$\cos \theta = \frac{\textit{adjacent}}{\textit{hypoteneuse}} = x$	$\sec \theta = \frac{\textit{hypoteneuse}}{\textit{adjacent}} = \frac{1}{x}$	$\textit{Cos}^{-1}x = \textit{arccosx}$ ="The angle between $0^\circ$ and $180^\circ$ whose cosine is x."
$\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}} = \frac{\sin \theta}{\cos \theta} = \frac{y}{x}$	$\cot \theta = \frac{\textit{adjacent}}{\textit{opposite}} = \frac{\cos \theta}{\sin \theta} = \frac{x}{y}$	$\textit{Tan}^{-1}x = \textit{arctanx}$ ="the angle between $-90^\circ$ and $90^\circ$ whose tangent is x."

Use the table above to fill in the following table with the appropriate signs (+ or -) throughout each quadrant of the unit circle:



	I	II	III	IV
$\sin \theta$				
$\cos \theta$				
$\tan \theta$				
$\cot \theta$				
$\sec \theta$				
$\csc \theta$				

1. Find  $\tan 210^\circ$  without a calculator (*find a reference angle on the unit circle*)

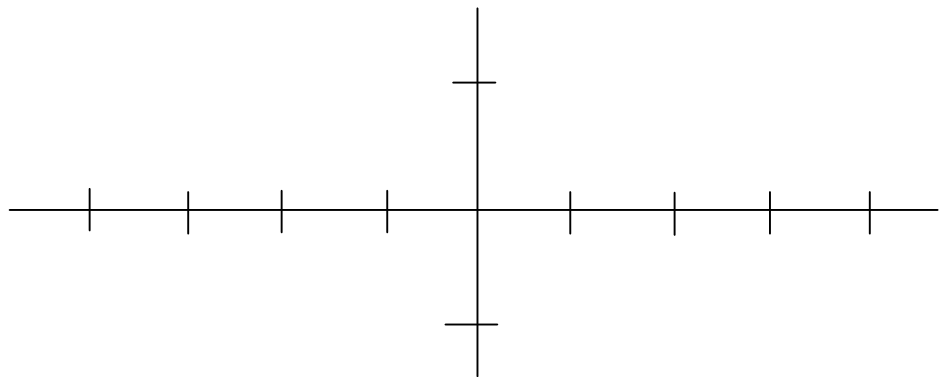
2. Find  $\tan (-2)$ : (*what mode should your calculator be in?*)

3. If  $\csc\theta = -\frac{17}{15}$  and  $-90^\circ < \theta < 90^\circ$ , find the values of the other five trigonometric functions. Draw the triangle on the axes.

### Graphing Tangent and Secant

1. Sketch 4 full periods of the graph  $y = \tan \theta$

$\theta$	$\tan \theta$
$-\frac{\pi}{3}$	
$-\frac{\pi}{6}$	
0	
$\frac{\pi}{6}$	
$\frac{\pi}{3}$	
$\frac{\pi}{2}$	
$\frac{2\pi}{3}$	
$\pi$	



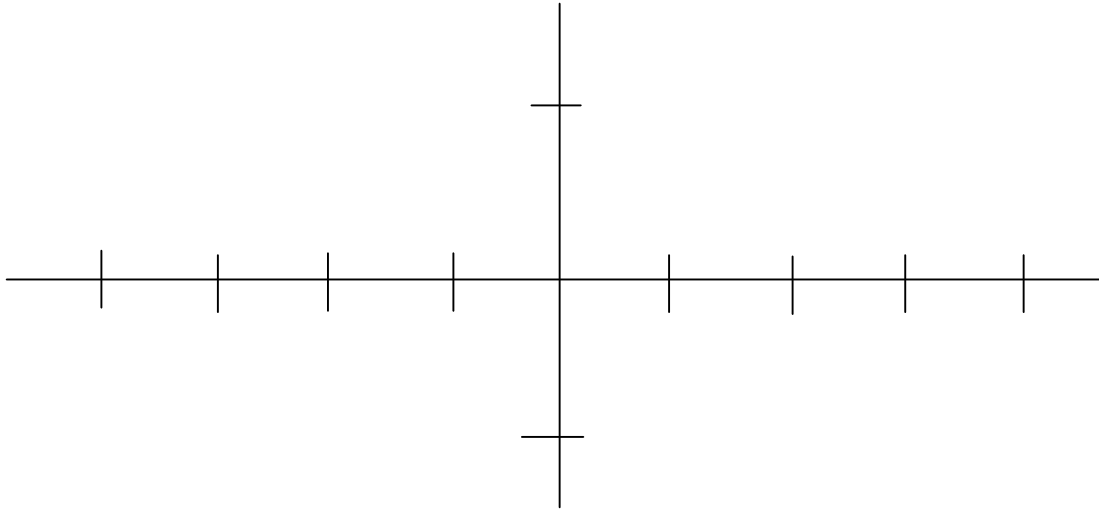
Period=

Domain:

Range:

Asymptotes:

2. Sketch two full periods of the function  $y = \cos \theta$



Graph  $\sec \theta$  on the same set of axes .

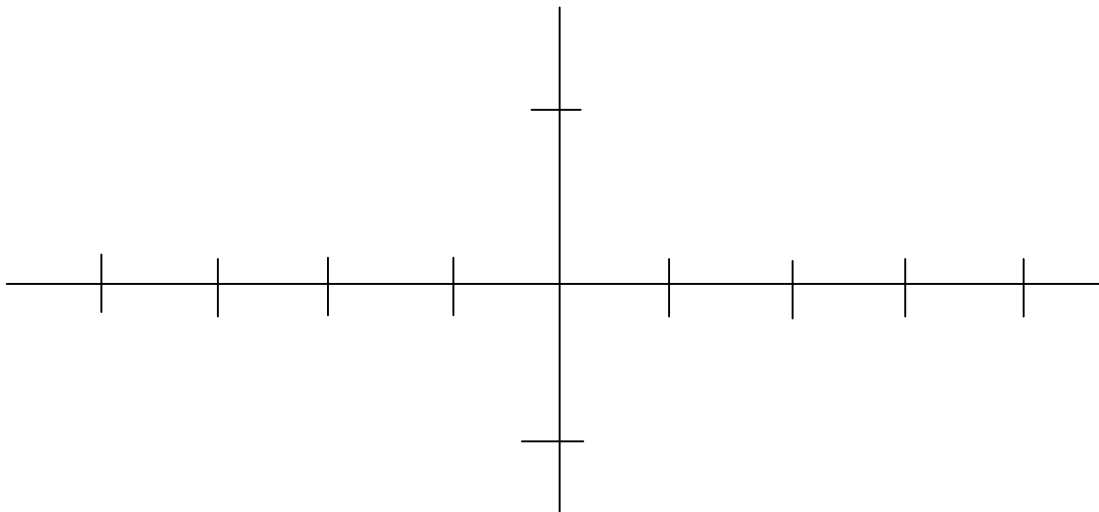
Domain:

Range:

Vertical asymptotes:

Period:

2. Sketch two full periods of the function  $y = \sin \theta$



Graph  $\csc \theta$  on the same set of axes above .

Domain:

Range:

Vertical asymptotes:

Period:

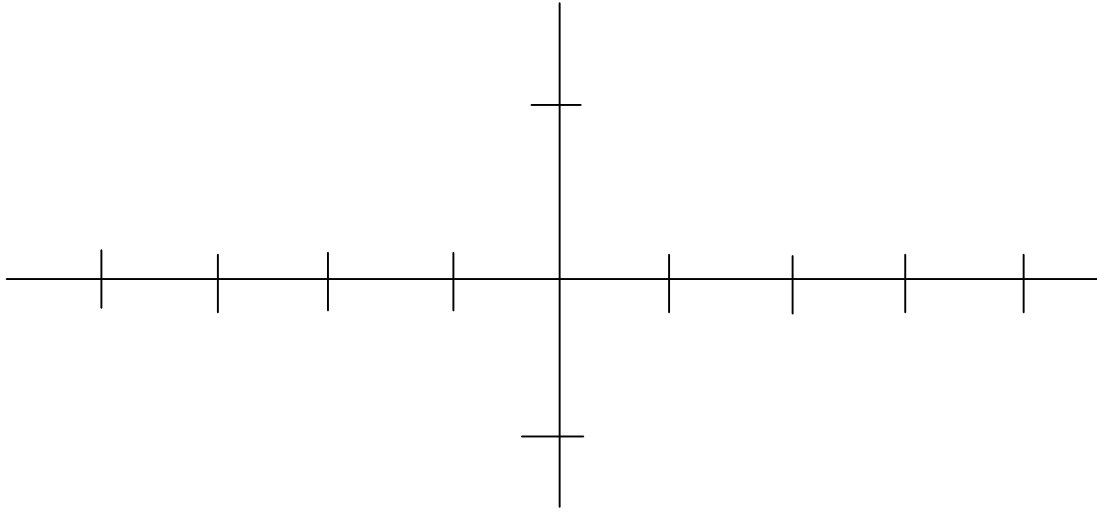
Without using a calculator, find the exact value of:

a)  $\sec 480^\circ$

b)  $\csc \left( \frac{-3\pi}{2} \right)$

c)  $\cot \pi$

2. Sketch two full periods of the function  $y = \cot \theta$



Domain:

Range:

Vertical asymptotes:

Period: