

Name: _____

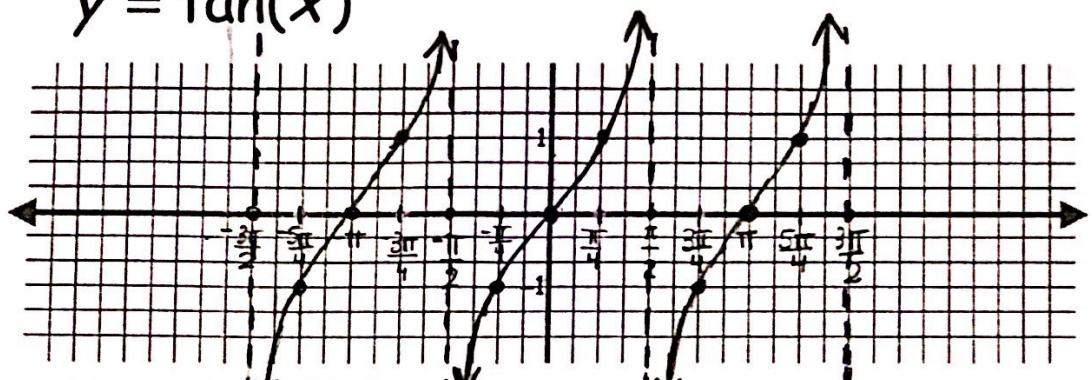
Class Period: _____

Precalculus - Unit 1 Day 9

Graphs of Tangent & Inverse Trig Functions

x	y
$-\frac{3\pi}{2}$	undef
$-\frac{5\pi}{4}$	-1
$-\pi$	0
$-\frac{3\pi}{4}$	1
$-\frac{\pi}{2}$	undef
$-\frac{\pi}{4}$	-1
0	0
$\frac{\pi}{4}$	1
$\frac{\pi}{2}$	undef
$\frac{3\pi}{4}$	-1
π	0
$\frac{5\pi}{4}$	1
$\frac{3\pi}{2}$	undef

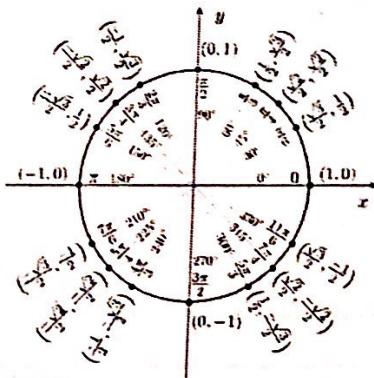
$$y = \tan(x)$$

Domain: $(-\infty, \infty)$ except every $\frac{\pi}{2} + \pi$

Range:

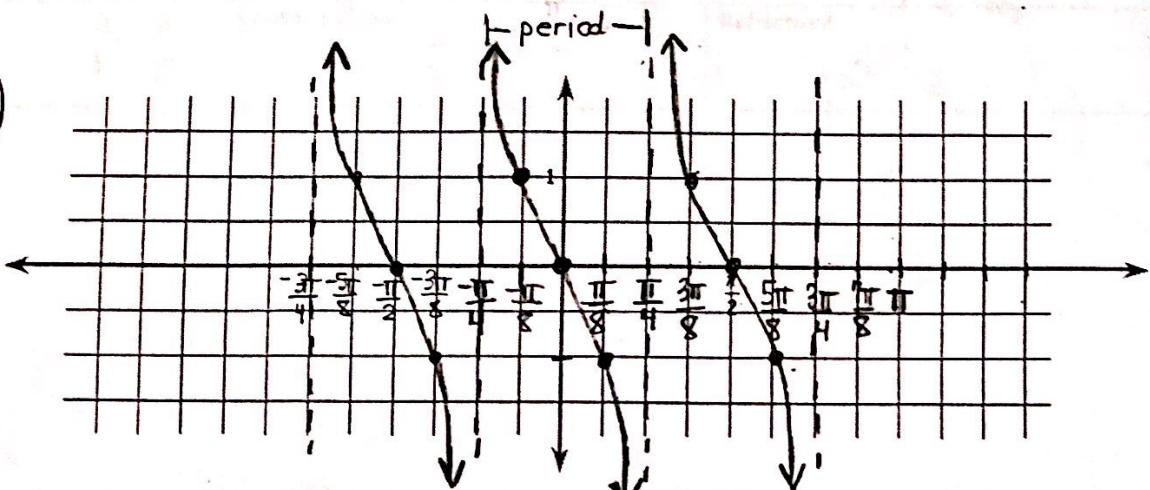
 $(-\infty, \infty)$

Period:

 π 

- When determining the domain, consider the fact that there are undefined values that occur at a regular interval. Figure out where the first undefined value is and then how often these undefined values occur.
- Notice that there are still "important values," however they occur every $\frac{\pi}{4}$ radians.
- Instead of having relative extrema and intercepts, there are x-intercepts, asymptotes, or points that show the vertical stretch.
- You can still find the important values by dividing the period by 4.
- Note there is not amplitude, because this is not a sinusoidal (wave) graph.

1. $y = -\tan(2\theta)$



Amplitude: NONE
There is only an amplitude for sinusoidal functions

Phase Shift:

0

Important Values:
every $\frac{\pi}{8}$ Period: $\frac{\pi}{b} = \frac{\pi}{2}$

Vertical Shift:

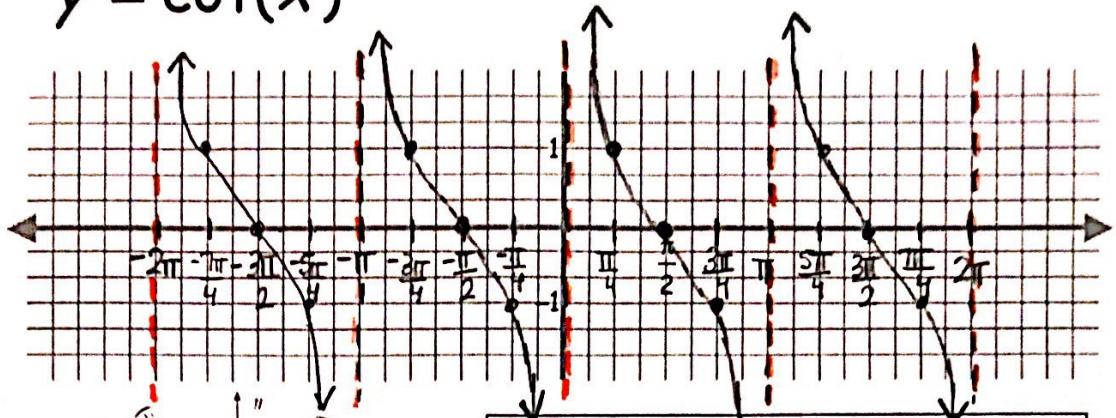
0

Reflection?

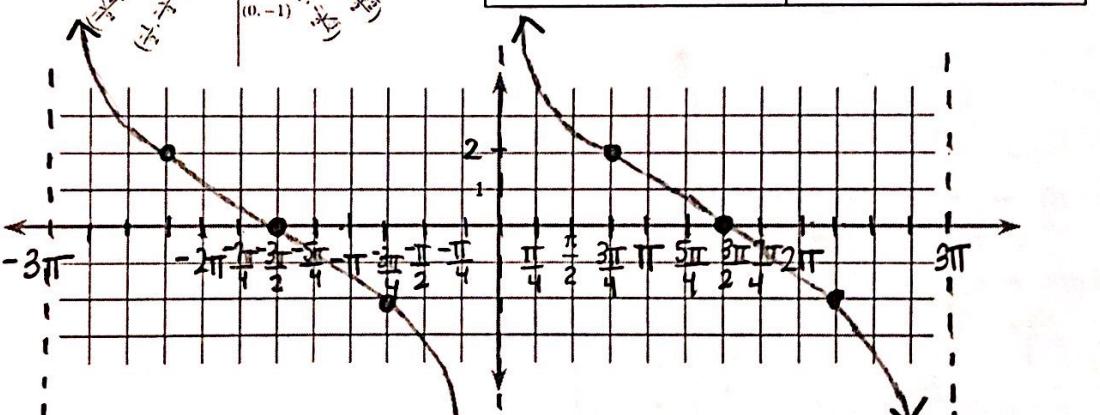
YES, over x-axis

x	y
$-\frac{3\pi}{2}$	0
$-\frac{5\pi}{4}$	-1
$-\pi$	undef
$-\frac{3\pi}{4}$	1
$-\frac{\pi}{2}$	0
$-\frac{\pi}{4}$	-1
0	undef.
$\frac{\pi}{4}$	1
$\frac{\pi}{2}$	0
$\frac{3\pi}{4}$	-1
π	undef
$\frac{5\pi}{4}$	1
$\frac{3\pi}{2}$	0

$$y = \cot(x)$$



Domain:	$(-\infty, \infty)$
	every $\pm \pi$
Range:	$(-\infty, \infty)$
Period	π



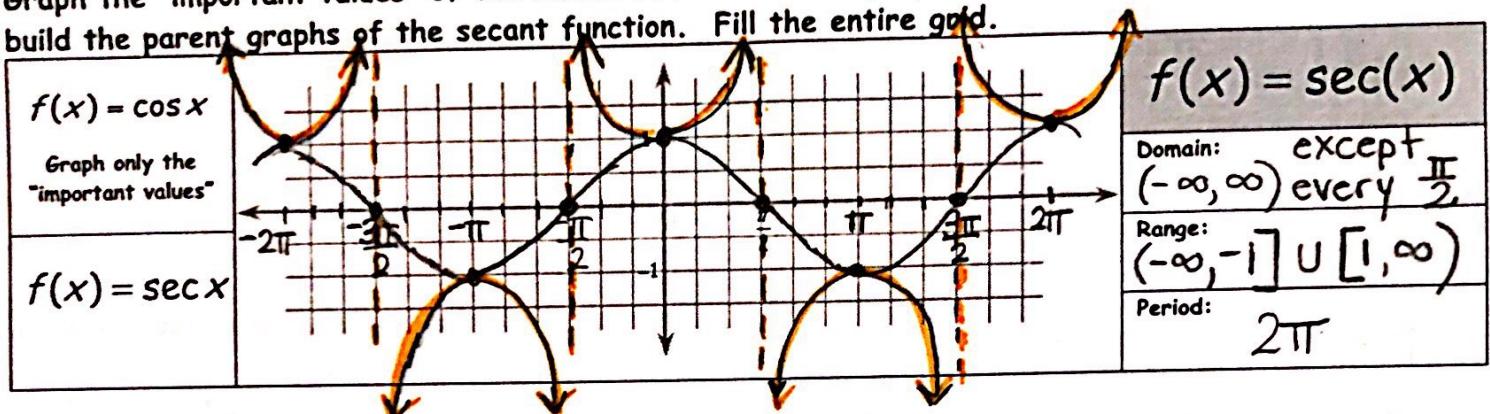
Amplitude: NONE There is only an amplitude for sinusoidal functions	Phase Shift: 0	Important Values: every $\frac{3\pi}{4}$
Period: 3π $\frac{\pi}{b}$ $\frac{\pi}{1/3}$	Vertical Shift: 0	Reflection? no

Precalculus

Name _____

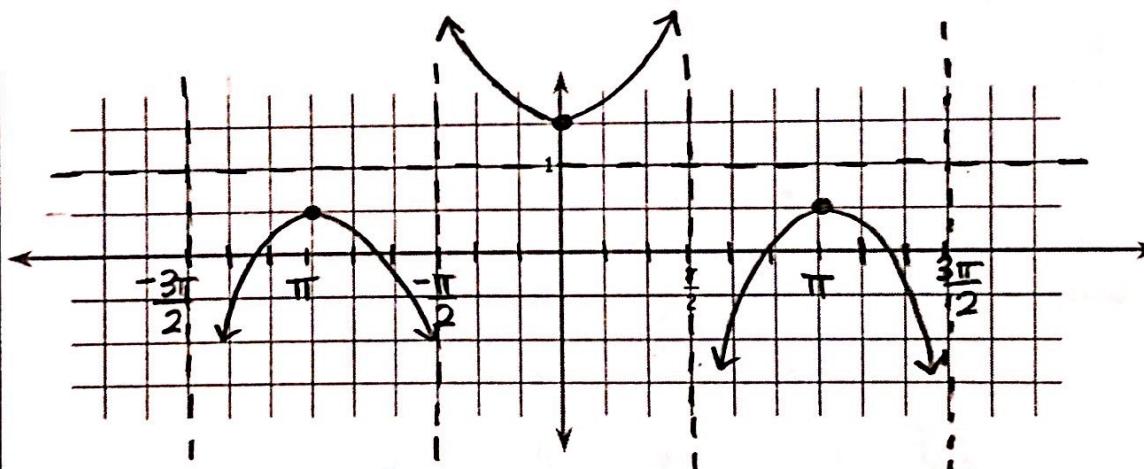
$0 + \pi$
 When the sine is equal to zero, the cosecant is undefined and there will be an asymptote on the graph. Likewise, when the cosine is equal to zero, the Secant is undefined and there will be an asymptote on the graph. $\frac{\pi}{2} + \frac{3\pi}{2}$

Graph the "important values" of the cosine function on the graph below and use these values to build the parent graphs of the secant function. Fill the entire grid.



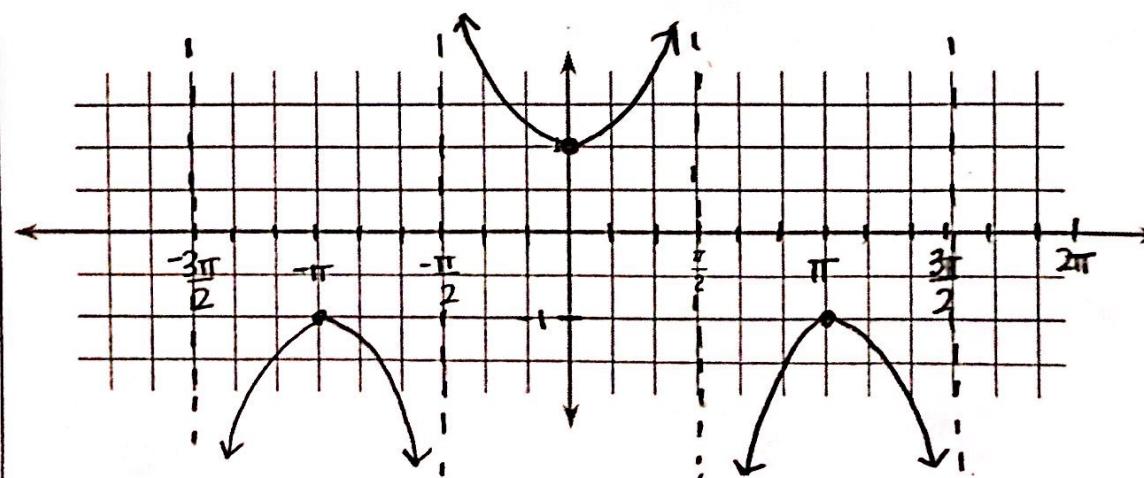
1. $y = \frac{1}{2} \sec x + 1$

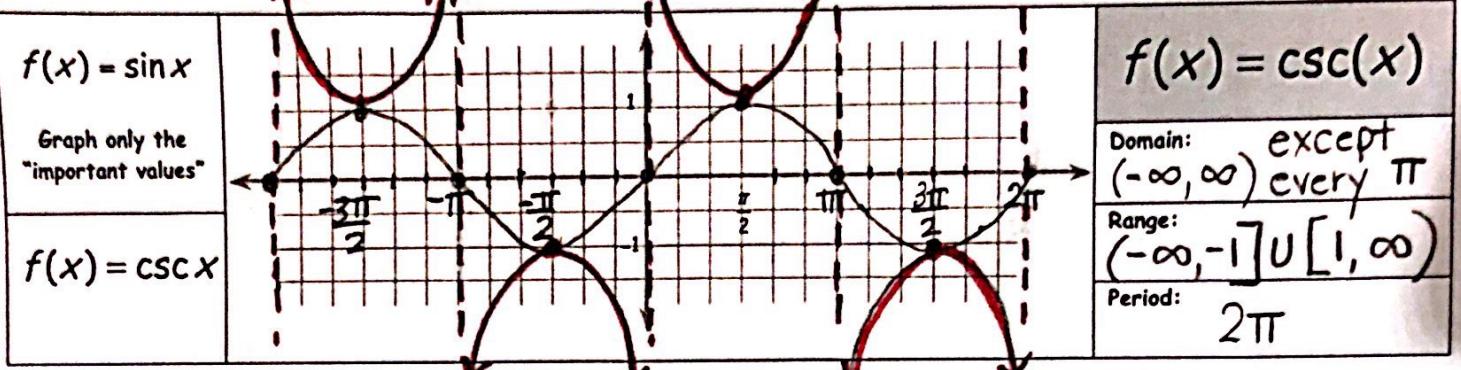
Amplitude:	Reflection?
NONE	no
Period:	Important Values: every $\frac{\pi}{2}$
2π	
Phase Shift:	Vertical Shift:
0	1



2. $y = -\sec(x - \pi)$

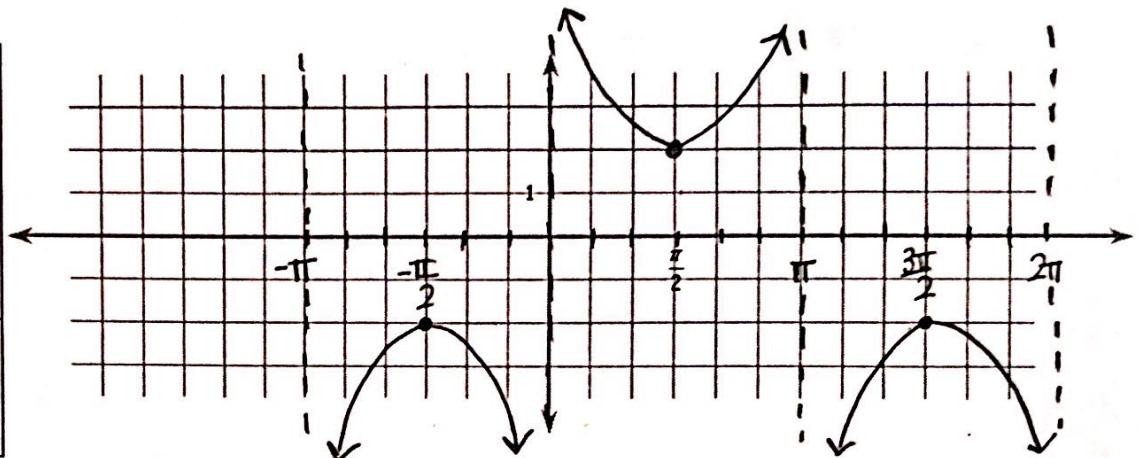
Amplitude:	Reflection?
none	yes
Period:	Important Values: every $\frac{\pi}{2}$
2π	
Phase Shift:	Vertical Shift:
π	0





3. $y = 2\csc x$

Amplitude:	Reflection?
NONE	no
Period:	Important Values: every $\frac{\pi}{2}$
2π	
Phase Shift:	Vertical Shift:
0	0



4. $y = -\csc 2x - 1$

Amplitude:	Reflection?
none	yes
Period:	Important Values: every $\frac{\pi}{4}$
π	
Phase Shift:	Vertical Shift:
0	down 1

