

8.4 The rest of the inverse trig functions...

Name: _____

Remember... \csc is the reciprocal of _____. \sec is the reciprocal of _____.

Part 1. If the restricted range of the inverse sine function is _____, what is the restricted range of the inverse cosecant function?

Fill in the table with the appropriate cosecant values

x	Csc(x)
$-\frac{\pi}{2}$	
0	
$\frac{\pi}{2}$	

Remember, to find an inverse of a function, switch your x & y values.

x	$\csc^{-1}(x)$

If a function value is undefined, what attribute will appear on the graph? HINT: think of the graph of normal cosecant. What happens every π radians?

Sketch the graph of $y = \csc^{-1}(x)$ below. Label each critical point and any horizontal asymptotes.

What value does the function approach as x approaches positive infinity? What value does the function approach as x approaches negative infinity?

Part 2. If the restricted range of the inverse cosine function is _____, what is the restricted range of the inverse secant function?

Fill in the table with the appropriate secant values

x	sec(x)
0	
$\frac{\pi}{2}$	
π	

Find your inverse critical values and fill in the table below.

x	$\sec^{-1}(x)$

What happens at $x = \frac{\pi}{2}$?

Sketch the graph of $y = \sec^{-1}(x)$ below. Label each critical point and any horizontal asymptotes.

What value does the function approach as x approaches positive infinity? What value does the function approach as x approaches negative infinity?

Part 3. The restricted range of the inverse cotangent function is $(0, \pi)$. What do the parenthesis tell you will happen at those end points?

Fill in the table with the appropriate cotangent values

x	cot(x)
0	
$\frac{\pi}{4}$	
$\frac{\pi}{2}$	
$\frac{3\pi}{4}$	
π	

Find your inverse critical values and fill in the table below.

x	$\cot^{-1}(x)$

What happens at $x=0$ and $x=\pi$?

Sketch the graph of $y = \cot^{-1}(x)$ below. Label each critical point and any horizontal asymptotes.

What value does the function approach as x approaches positive infinity? What value does the function approach as x approaches negative infinity?