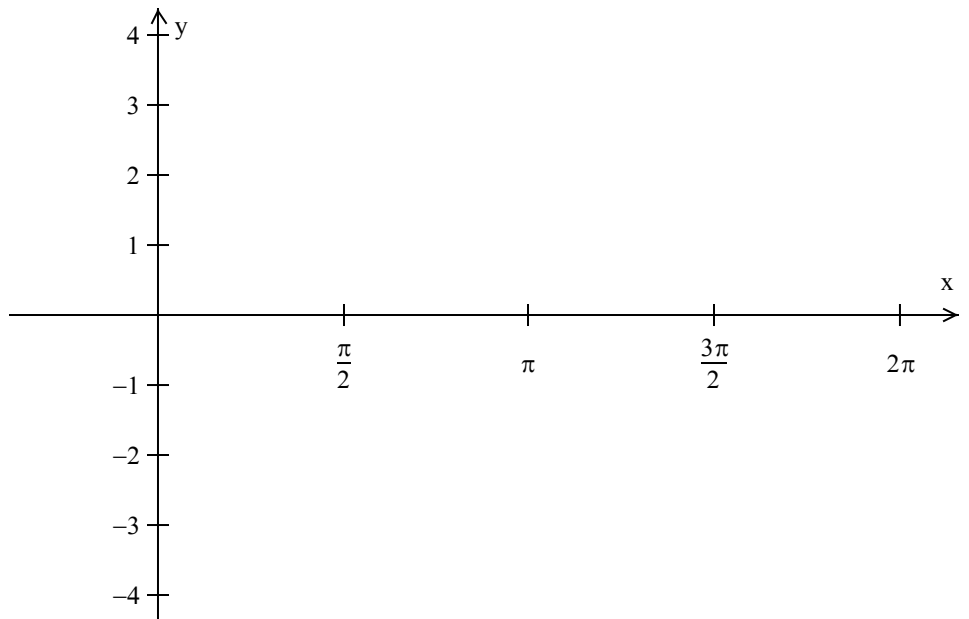


Activity – Graphs of Tangent and Cotangent Functions

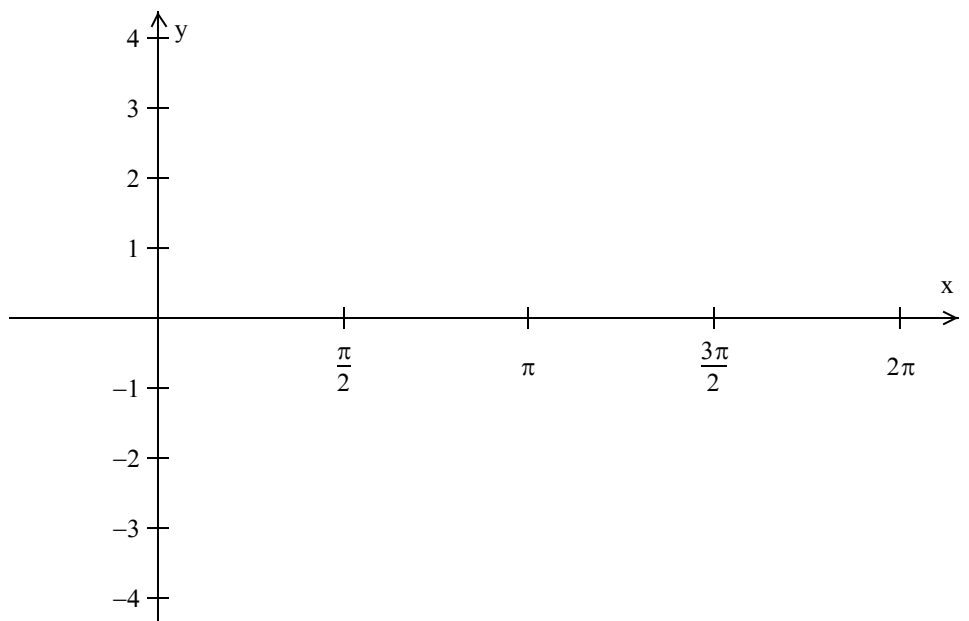
We are interested in the graphs of tangent and cotangent functions. Again we will look at the basic graphs and then transformations of them.

Part 1. The Basic Tangent and Cotangent Function Graphs. Complete the table on the left below. For irrational values, also give a one decimal place approximate. Write a U if the function is undefined at the given value. Then plot those values on the Cartesian Plane given to the right. Undefined values signify a vertical asymptote. Choose values near a vertical asymptote and use your calculator to find the trig function value. What happens near each asymptote? Using this knowledge, complete each graph.

x	$\tan(x)$	$\cot(x)$
0		
$\frac{\pi}{6}$		
$\frac{\pi}{4}$		
$\frac{\pi}{3}$		
$\frac{\pi}{2}$		
$\frac{2\pi}{3}$		
$\frac{3\pi}{4}$		
$\frac{5\pi}{6}$		
π		
$\frac{7\pi}{6}$		
$\frac{5\pi}{4}$		
$\frac{4\pi}{3}$		
$\frac{3\pi}{2}$		
$\frac{5\pi}{3}$		
$\frac{7\pi}{4}$		
$\frac{11\pi}{6}$		
2π		



$$J(x) = \tan(x)$$

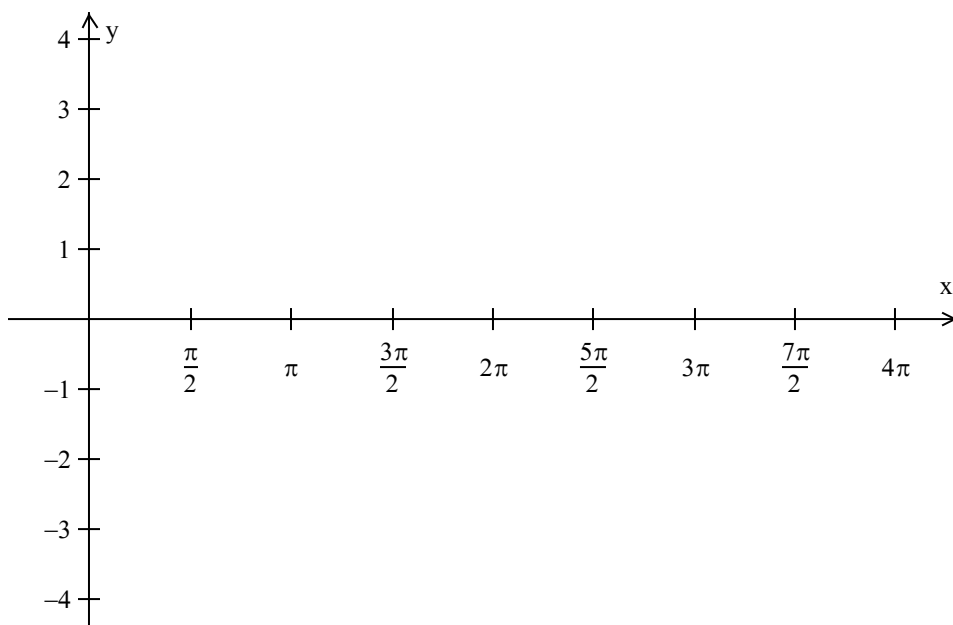


$$K(x) = \cot(x)$$

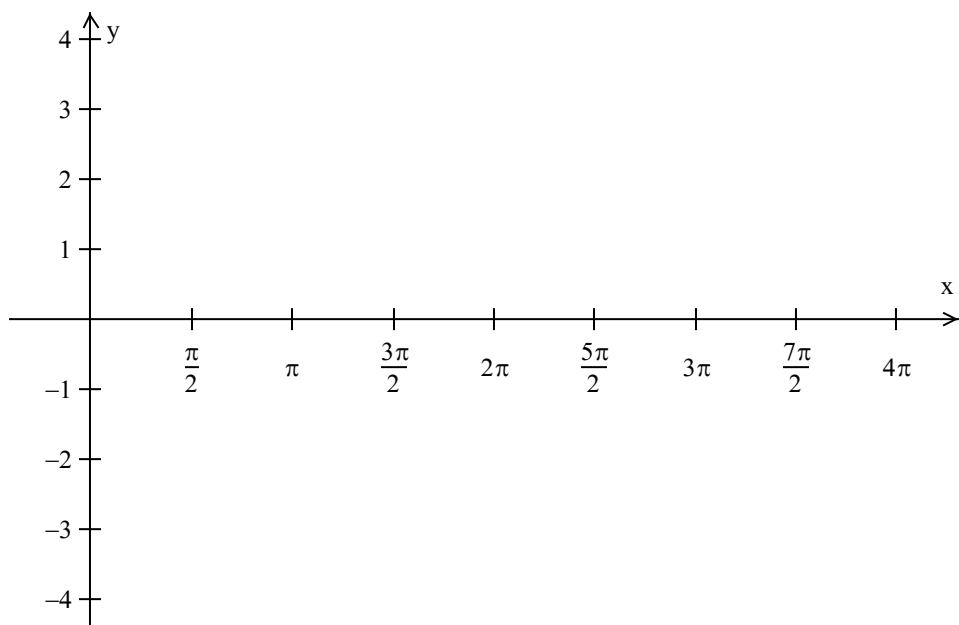
	Period	Domain	Range	y-intercept	Equations of Asymptotes
$y = \tan(x)$					
$y = \cot(x)$					

Part 2. Transformations of Tangent and Cotangent Functions

a) Graph $y = 2 \tan(x) + 1$.



b) Graph $y = \tan\left(\frac{1}{4}x\right) - 2$.



c) Graph $y = \cot\left(x + \frac{\pi}{6}\right)$

