Section 5.4 - More Trigonometric Graphs

Graph of the Tangent Function

Period: ____________

Range: ____________

Graph of the Cotangent Function

Period: ____________

Range: ____________

GRAPHS INVOLVING TANGENT AND COTANGENT CURVES

• Amplitude is not defined for the tangent and cotangent functions, since deviation from the $x$-axis for both functions is indefinitely far in both directions.

• We now graph the more general forms of the tangent and cotangent functions [that is, functions of the form $y = a \tan k(x - b)$ and $y = a \cot k(x - b)$], following essentially the same process we discussed for graphing $y = a \sin k(x - b)$ and $y = a \cos k(x - b)$. The process is not difficult if you have a clear understanding of the basic graphs of $y = \tan x$ and $y = \cot x$. In graphing the more general forms of the tangent and cotangent functions, keep in mind that the functions

$$y = a \tan kx \quad \text{and} \quad y = a \cot kx \quad (k > 0)$$

have period $\pi/k$. 
Graph of the Cosecant Function

Period: ____________

Range: ____________

Graph of the Secant Function

Period: ____________

Range: ____________

GRAPHS INVOLVING COSECANT AND SECANT CURVES

• Amplitude is not defined for the cosecant and secant functions, since deviation from the x-axis for both functions is indefinitely far in both directions.

• We now graph the more general forms of the cosecant and secant functions [that is, functions of the form $y = a \csc k(x - b)$ and $y = a \sec k(x - b)$], following essentially the same process we discussed for graphing $y = a \sin k(x - b)$ and $y = a \cos k(x - b)$. The process is not difficult if you have a clear understanding of the basic graphs of $y = \csc x$ and $y = \sec x$. In graphing the more general forms of the cosecant and secant functions, keep in mind that the functions

$$y = a \csc kx \quad \text{and} \quad y = a \sec kx \quad (k > 0)$$

have period $2\pi/k$. 