Notes: Derivatives Of Trigonometric Functions   Derivatives Day 5

$\frac{d}{dx}[sinx] =$_____ $\frac{d}{dx}[cosx] =$_____

$\frac{d}{dx}[tanx] =$_____ $\frac{d}{dx}[cotx] =$_____

$\frac{d}{dx}[secx] =$_____ $\frac{d}{dx}[cscx] =$_____

$\frac{d}{dx}[\sin x] =$ $\frac{d}{dx}[\sin AT] =$ $AT = Anything$	$\frac{d}{dx}[\cos x] =$ $\frac{d}{dx}[\cos AT] =$ $AT = Anything$	$\frac{d}{dx}[\tan x] =$ $\frac{d}{dx}[\tan AT] =$ $AT = Anything$
$\frac{d}{dx}[\csc x] =$ $\frac{d}{dx}[\csc x] =$ $AT = Anything$	$\frac{d}{dx}[\sec x] =$ $\frac{d}{dx}[\sec AT] =$ $AT = Anything$	$\frac{d}{dx}[\cot x] =$ $\frac{d}{dx}[\cot AT] =$ $AT = Anything$

Example 1: Prove $\frac{d}{dx}[tanx] = sec^2x$

Example 2: Prove $\frac{d}{dx}[cscx] = -cscxcotx$

Example(s) 3:

A. $f(x) = \cos x$ find $f'\left(\frac{5\pi}{6}\right)=$

B. $f(x) = \tan x$ find $f'\left(\frac{3\pi}{4}\right)=$

C. $f(x) = \sec x$ find $f'(\pi)=$

Example 4: Find the equation of the tangent line for $f(x) = x\sin x$ at $x = \frac{\pi}{3}$.

Example 5: $f(x) = \cos^2 x$ Example 6: $f(x) = \sin x(x^2 - 3x)$
      Find $f'(x)$ Find $f'(x)$

Horizontal Tangents: Set $f'(x)=0$ and solve for x.

Example 7: $f(x) = \sqrt{3}x + 2\cos x$ Find the Horizontal Tangent.

How do you find a horizontal tangent?