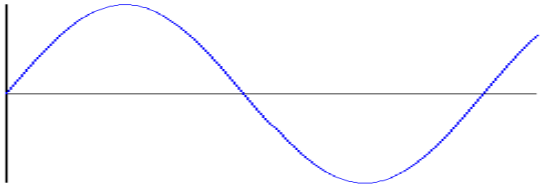
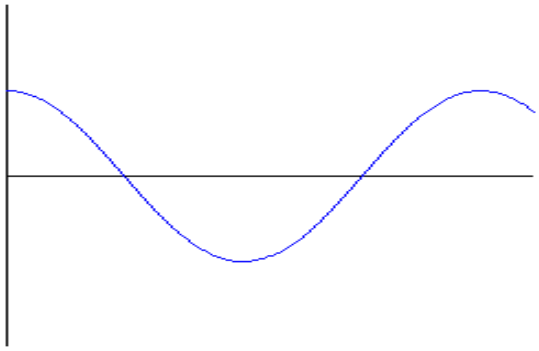
**Notes_Derivatives of Trig Functions** **AB Calculus**

Use the graph $y = sinx$ to draw tangent lines at each of the five key points.



**The derivative of $y = sinx$ is _____.**

Now graph the derivative by finding the derivative at each of those 5 points and determine the curve that you see.



**The derivative of $y = cosx$ is _____.**

Use the graph $y = cosx$ to draw tangent lines at each of the five key points.

Now graph the derivative by finding the derivative at each of those 5 points and determine the curve that you see.

## You will need to MEMORIZE these Trig Derivatives!

$\frac{d}{dx}(sinx) = cosx$ $\frac{d}{dx}(tanx) = sec^2x$ $\frac{d}{dx}(secx) = secx\,tanx$

$\frac{d}{dx}(cosx) = -sinx$ $\frac{d}{dx}(cotx) = -csc^2x$ $\frac{d}{dx}(cscx) = -cscx\,cotx$

***Note: All the "co" functions are _____.**

**Examples:**

1. $y = x\,sinx$ ; find $y'$

2. $y = x^2\,cscx$ ; find $\frac{dy}{dx}$

3. $y = \frac{sinx}{1+cosx}$

4. $y = \frac{2}{cscx} - \frac{1}{secx}$

5. Write the equation of the line tangent to the curve $y = xsinx$ at $x = \frac{\pi}{2}$.

6. Write the equation of the line tangent to curve of $f(x) = 4sinx$ at $x = \frac{\pi}{3}$.

7. Find the equation of the horizontal tangent over the interval [0, π] for $y = 2sinx$.