Entry #: _____

Lesson 2.2: Product Rule, Quotient Rule, & Trig Rules

Product Rule & Quotient Rule

Product Rule		
Quotient Rule		

Examples: Differentiate

1. $f(x) = (3x^2 - 2)(2x + 3)$

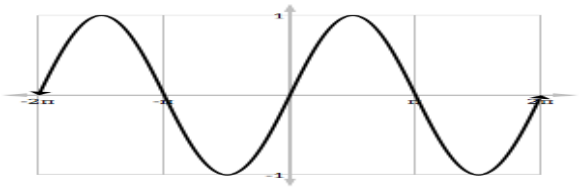
2. $y = \frac{2x^2-4x+3}{2-3x}$

3. $y = \frac{-9}{5x^2}$

4. If $f(2) = 3$ and $f'(2) = -4$
   Find $g'(2)$ when $g(x) = x^2 f(x)$.

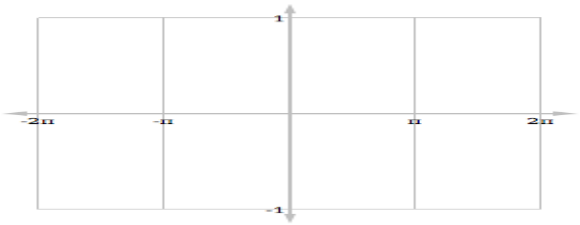
Trig Rules

The graph of $f(x) = \sin(x)$ is shown at right.



Estimate slopes for the graph of $f(x) = \sin(x)$ at $x = -2\pi, \frac{-3\pi}{2}, -\pi, \frac{-\pi}{2}, 0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, \& 2\pi$.

Plot these slopes in the coordinate plane at right, and connect them to make a smooth, continuous curve.
This is the graph of $f'(x)$.



$f'(x) =$

Derivatives of Trigonometric Functions

Examples: Differentiate each of the following.

1. $y = \frac{\sin(x)}{\cos(x)}$

2. $f(x) = 2xcos(x)$

3. Find an equation of a line tangent to the graph of $y = \frac{\sin(\theta)}{\theta}$ when $\theta = \pi$.