Calculus AB

2-2

Derivatives

Find the derivative: Pascal's Triangle

$f(x) = x^4$

$f'(x) =$

The Power Rule -

If n is a rational number, then $f(x) = x^n$ is differentiable and

$$\frac{d}{dx}\left[x^n \right] =$$

Find the derivative of each function. (pg 115)

6) $y = x^{16}$ *) $y = 8$

The Constant Rule - $\frac{d}{dx}\left[cf(x) \right] =$

*) $f(x) = 3x^2$

The Sum and Difference Rules -

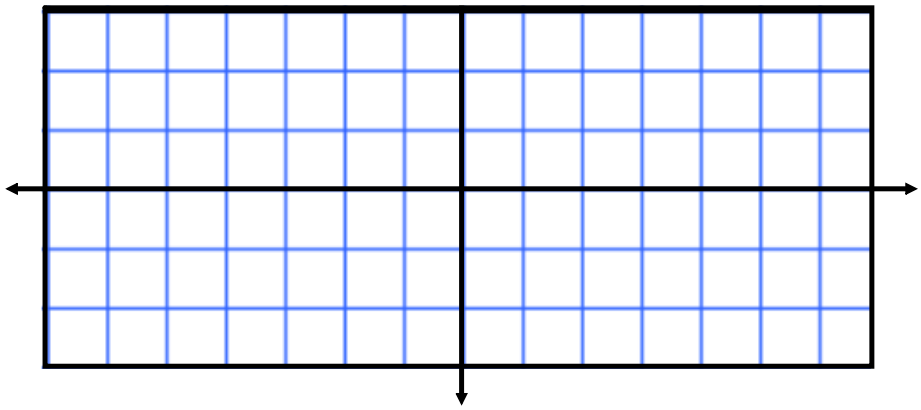
$$\frac{d}{dx}\left[f(x) + g(x) \right] =$$

$$\frac{d}{dx}\left[f(x) - g(x) \right] =$$

14) $f(t) = t^2 + 2t - 3$

$f(x) = \sin(x)$

Graph $f(x)$ and Graph $f'(x)$:



Derivatives of the Sine and Cosine Functions

$f(x) = \sin(x)$, $f'(x) =$ _____

$g(x) = \cos(x)$, $g'(x) =$ _____

19) $g(t) = \pi \cos t$

Complete the table.

Original Function	Rewrite	Differentiate	Simplify

26) $y = \dfrac{6}{(5x)^3}$

Find the slope of the graph of the function at the indicated point.

32) $g(t) = 3 - \frac{3}{5t}$ at $(\frac{3}{5}, 2)$

Find the derivative of the function.

42) $f(x) = x + \frac{1}{x^2}$

45) $f(x) = \frac{x^3 - 6}{x^2}$

50) $f(x) = \sqrt[3]{x} + \sqrt[5]{x}$

Assignment:

Pg. 113
1-53 odd