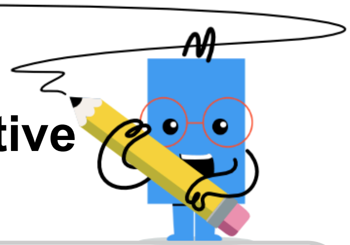
Name ______________________



Derivative Rules - Quotient Rule Negative Powers (with Rule) to Derivative

1 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{2x^{-2}+7}{-2x^2}$$

A $f'(x) = \frac{(2x^{-2}+7)(-4x)-(-4x^{-3})(-2x^2)}{(-2x^2)^2}$	B $f'(x) = \frac{(-4x^{-3})(-2x^2)-(2x^{-2}+7)(-4x)}{(-2x^2)}$
C $f'(x) = \frac{(-4x^{-3})(-2x^2)-(2x^{-2}+7)(-4x)}{(-2x^2)^2}$	D $f'(x) = \frac{(-4x^{-3})(-2x^2)+(2x^{-2}+7)(-4x)}{(-2x^2)^2}$

2 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{-5x^{-1}-6}{3x}$$

A $f'(x) = \frac{(-5x^{-1}-6)(3)-(5x^{-2})(3x)}{(3x)^2}$	B $f'(x) = \frac{(5x^{-2})(3x)+(-5x^{-1}-6)(3)}{(3x)^2}$
C $f'(x) = \frac{(5x^{-2})(3x)-(-5x^{-1}-6)(3)}{(3x)^2}$	D $f'(x) = \frac{(5x^{-2})(3x)-(-5x^{-1}-6)(3)}{(3x)}$

3 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{-5x^{-3}-7}{2x+5}$$

A $f'(x) = \frac{(15x^{-4})(2x+5)-(-5x^{-3}-7)(2)}{(2x+5)^2}$	B $f'(x) = \frac{(15x^{-4})(2x+5)-(-5x^{-3}-7)(2)}{(2x+5)}$
C $f'(x) = \frac{(-5x^{-3}-7)(2)-(15x^{-4})(2x+5)}{(2x+5)^2}$	D $f'(x) = \frac{(15x^{-4})(2x+5)+(-5x^{-3}-7)(2)}{(2x+5)^2}$

4 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{-3x^{-3}+4}{2x}$$

A $f'(x) = \frac{(-3x^{-3}+4)(2)-(9x^{-4})(2x)}{(2x)^2}$	B $f'(x) = \frac{(9x^{-4})(2x)-(-3x^{-3}+4)(2)}{(2x)^2}$
C $f'(x) = \frac{(9x^{-4})(2x)+(-3x^{-3}+4)(2)}{(2x)^2}$	D $f'(x) = \frac{(9x^{-4})(2x)-(-3x^{-3}+4)(2)}{(2x)}$

5 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{-4x^{-1}+3}{4x^2}$$

A $f'(x) = \frac{(4x^{-2})(4x^2)-(-4x^{-1}+3)(8x)}{(4x^2)^2}$	B $f'(x) = \frac{(4x^{-2})(4x^2)-(-4x^{-1}+3)(8x)}{(4x^2)}$
C $f'(x) = \frac{(-4x^{-1}+3)(8x)-(4x^{-2})(4x^2)}{(4x^2)^2}$	D $f'(x) = \frac{(4x^{-2})(4x^2)+(-4x^{-1}+3)(8x)}{(4x^2)^2}$

6 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{-4x^{-3}+6}{2x+2}$$

A $f'(x) = \frac{(12x^{-4})(2x+2)+(-4x^{-3}+6)(2)}{(2x+2)^2}$	B $f'(x) = \frac{(12x^{-4})(2x+2)-(-4x^{-3}+6)(2)}{(2x+2)^2}$
C $f'(x) = \frac{(12x^{-4})(2x+2)-(-4x^{-3}+6)(2)}{(2x+2)}$	D $f'(x) = \frac{(-4x^{-3}+6)(2)-(12x^{-4})(2x+2)}{(2x+2)^2}$

7 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{3x^{-1}+7}{2x-4}$$

A $f'(x) = \frac{(-3x^{-2})(2x-4)+(3x^{-1}+7)(2)}{(2x-4)^2}$	B $f'(x) = \frac{(-3x^{-2})(2x-4)-(3x^{-1}+7)(2)}{(2x-4)}$
C $f'(x) = \frac{(-3x^{-2})(2x-4)-(3x^{-1}+7)(2)}{(2x-4)^2}$	D $f'(x) = \frac{(3x^{-1}+7)(2)-(-3x^{-2})(2x-4)}{(2x-4)^2}$

8 Find the derivative f'(x) using the quotient rule.

$$\text{if } h(x) = \frac{f(x)}{g(x)},\ h'(x) = \frac{f'(x)\,g(x) - f(x)\,g'(x)}{[g(x)]^2}$$

$$f(x) = \frac{5x^{-3}+4}{5x-5}$$

A $f'(x) = \frac{(-15x^{-4})(5x-5)-(5x^{-3}+4)(5)}{(5x-5)^2}$	B $f'(x) = \frac{(5x^{-3}+4)(5)-(-15x^{-4})(5x-5)}{(5x-5)^2}$
C $f'(x) = \frac{(-15x^{-4})(5x-5)+(5x^{-3}+4)(5)}{(5x-5)^2}$	D $f'(x) = \frac{(-15x^{-4})(5x-5)-(5x^{-3}+4)(5)}{(5x-5)}$