Name

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

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

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

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

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

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

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

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

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

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

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

A $f'(x) = \frac{(12x^{-4})(5x) - (-4x^{-3}+4)(5)}{(5x)^2}$

B $f'(x) = \frac{(-4x^{-3}+4)(5) - (12x^{-4})(5x)}{(5x)^2}$

C $f'(x) = \frac{(12x^{-4})(5x) + (-4x^{-3}+4)(5)}{(5x)^2}$

D $f'(x) = \frac{(12x^{-4})(5x) - (-4x^{-3}+4)(5)}{(5x)}$

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

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

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

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

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

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

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

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

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

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

A $f'(x) = \frac{(5x^{-2}-2)(10x) - (-10x^{-3})(5x^2)}{(5x^2)^2}$

B $f'(x) = \frac{(-10x^{-3})(5x^2) + (5x^{-2}-2)(10x)}{(5x^2)^2}$

C $f'(x) = \frac{(-10x^{-3})(5x^2) - (5x^{-2}-2)(10x)}{(5x^2)^2}$

D $f'(x) = \frac{(-10x^{-3})(5x^2) - (5x^{-2}-2)(10x)}{(5x^2)}$

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

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

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

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

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

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

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

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

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

$f(x) = \frac{-\frac{4}{x^3} + 7}{-5x + 5}$

A $f'(x) = \frac{(-4x^{-3}+7)(-5) - (12x^{-4})(-5x+5)}{(-5x+5)^2}$

B $f'(x) = \frac{(12x^{-4})(-5x+5) - (-4x^{-3}+7)(-5)}{(-5x+5)^2}$

C $f'(x) = \frac{(12x^{-4})(-5x+5) - (-4x^{-3}+7)(-5)}{(-5x+5)}$

D $f'(x) = \frac{(12x^{-4})(-5x+5) + (-4x^{-3}+7)(-5)}{(-5x+5)^2}$

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

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

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

A $f'(x) = \frac{(-9x^{-4})(-2x^2) - (3x^{-3}+7)(-4x)}{(-2x^2)}$

B $f'(x) = \frac{(-9x^{-4})(-2x^2) + (3x^{-3}+7)(-4x)}{(-2x^2)^2}$

C $f'(x) = \frac{(3x^{-3}+7)(-4x) - (-9x^{-4})(-2x^2)}{(-2x^2)^2}$

D $f'(x) = \frac{(-9x^{-4})(-2x^2) - (3x^{-3}+7)(-4x)}{(-2x^2)^2}$

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

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

$f(x) = \frac{-\frac{5}{x^2} + 4}{4x^2}$

A $f'(x) = \frac{(-5x^{-2}+4)(8x) - (10x^{-3})(4x^2)}{(4x^2)^2}$

B $f'(x) = \frac{(10x^{-3})(4x^2) - (-5x^{-2}+4)(8x)}{(4x^2)^2}$

C $f'(x) = \frac{(10x^{-3})(4x^2) - (-5x^{-2}+4)(8x)}{(4x^2)}$

D $f'(x) = \frac{(10x^{-3})(4x^2) + (-5x^{-2}+4)(8x)}{(4x^2)^2}$