



Derivative Rules - Product Rule Positive Powers to Derivative

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

$$f(x) = (-4x^2 - 2)(3x^2)$$

A $f'(x) = (-8x)(3x^2) + (-4x^2 - 2)(6x)$ B $f'(x) = (-8x)(3x^2) - (-4x^2 - 2)(6x)$

C $f'(x) = (-8x)(6x)$ D $f'(x) = (-8x)(3x^2)$

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

$$f(x) = (3x^2 - 7)(-2x - 2)$$

A $f'(x) = (6x)(-2)$ B $f'(x) = (6x)(-2x - 2)$

C $f'(x) = (6x)(-2x - 2) - (3x^2 - 7)(-2)$ D $f'(x) = (6x)(-2x - 2) + (3x^2 - 7)(-2)$

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

$$f(x) = (5x^4 + 3)(3x)$$

A $f'(x) = (20x^3)(3x)$ B $f'(x) = (20x^3)(3x) + (5x^4 + 3)(3)$

C $f'(x) = (20x^3)(3x) - (5x^4 + 3)(3)$ D $f'(x) = (20x^3)(3)$

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

$$f(x) = (2x^4 + 2)(3x^2 - 6)$$

A $f'(x) = (8x^3)(6x)$ B $f'(x) = (8x^3)(3x^2 - 6) - (2x^4 + 2)(6x)$

C $f'(x) = (8x^3)(3x^2 - 6)$ D $f'(x) = (8x^3)(3x^2 - 6) + (2x^4 + 2)(6x)$

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

$$f(x) = (-5x^2 - 2)(-2x^2 - 6)$$

A $f'(x) = (-10x)(-4x)$ B $f'(x) = (-10x)(-2x^2 - 6) - (-5x^2 - 2)(-4x)$

C $f'(x) = (-10x)(-2x^2 - 6)$ D $f'(x) = (-10x)(-2x^2 - 6) + (-5x^2 - 2)(-4x)$

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

$$f(x) = (4x^2 - 4)(-5x^2 + 2)$$

A $f'(x) = (8x)(-5x^2 + 2) + (4x^2 - 4)(-10x)$ B $f'(x) = (8x)(-5x^2 + 2) - (4x^2 - 4)(-10x)$

C $f'(x) = (8x)(-5x^2 + 2)$ D $f'(x) = (8x)(-10x)$

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

$$f(x) = (-3x^3 + 7)(-4x^2)$$

A $f'(x) = (-9x^2)(-4x^2) + (-3x^3 + 7)(-8x)$ B $f'(x) = (-9x^2)(-8x)$

C $f'(x) = (-9x^2)(-4x^2) - (-3x^3 + 7)(-8x)$ D $f'(x) = (-9x^2)(-4x^2)$

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

$$f(x) = (-4x^2 - 3)(-2x - 5)$$

A $f'(x) = (-8x)(-2)$ B $f'(x) = (-8x)(-2x - 5) + (-4x^2 - 3)(-2)$

C $f'(x) = (-8x)(-2x - 5) - (-4x^2 - 3)(-2)$ D $f'(x) = (-8x)(-2x - 5)$