



## Derivative Rules - Product Rule Negative Powers to Derivative

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

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

A  $f(x) = (-2x^{-2})(-3x) + (2x^{-1} + 4)(-3)$  B  $f(x) = (-2x^{-2})(-3x) - (2x^{-1} + 4)(-3)$

C  $f'(x) = (-2x^{-2})(-3)$  D  $f'(x) = (-2x^{-2})(-3x)$

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

$$f(x) = (-5x^{-1} - 6)(4x^2)$$

A  $f(x) = (5x^{-2})(4x^2) - (-5x^{-1} - 6)(8x)$  B  $f'(x) = (5x^{-2})(8x)$

C  $f(x) = (5x^{-2})(4x^2) + (-5x^{-1} - 6)(8x)$  D  $f'(x) = (5x^{-2})(4x^2)$

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

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

A  $f'(x) = (-12x^{-4})(3x^2)$  B  $f(x) = (-12x^{-4})(3x^2) + (4x^{-3} - 5)(6x)$

C  $f'(x) = (-12x^{-4})(6x)$  D  $f(x) = (-12x^{-4})(3x^2) - (4x^{-3} - 5)(6x)$

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

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

A  $f'(x) = (10x^{-3})(5x^2)$  B  $f(x) = (10x^{-3})(5x^2) - (-5x^{-2} + 7)(10x)$

C  $f'(x) = (10x^{-3})(10x)$  D  $f(x) = (10x^{-3})(5x^2) + (-5x^{-2} + 7)(10x)$

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

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

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

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

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

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

A  $f'(x) = (-8x^{-3})(-6x)$  B  $f'(x) = (-8x^{-3})(-3x^2)$

C  $f(x) = (-8x^{-3})(-3x^2) - (4x^{-2} + 7)(-6x)$  D  $f(x) = (-8x^{-3})(-3x^2) + (4x^{-2} + 7)(-6x)$

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

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

A  $f(x) = (-15x^{-4})(5x) - (5x^{-3} - 6)(5)$  B  $f'(x) = (-15x^{-4})(5x)$

C  $f(x) = (-15x^{-4})(5x) + (5x^{-3} - 6)(5)$  D  $f'(x) = (-15x^{-4})(5)$

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

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

A  $f'(x) = (-10x^{-3})(2)$  B  $f(x) = (-10x^{-3})(2x) - (5x^{-2} - 6)(2)$

C  $f(x) = (-10x^{-3})(2x) + (5x^{-2} - 6)(2)$  D  $f'(x) = (-10x^{-3})(2x)$