



# Derivative Rules - Product Rule Negative Powers (with Rule) to Derivative

1 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (3x^{-2} - 3)(-5x^2)$

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

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

2 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (5x^{-1} + 3)(5x^2)$

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

A	B	C	D
$f'(x) = (-5x^{-2})(5x^2) + (5x^{-1} + 3)(10x)$	$f'(x) = (-5x^{-2})(5x^2)$	$f'(x) = (-5x^{-2})(10x)$	$f'(x) = (-5x^{-2})(5x^2) - (5x^{-1} + 3)(10x)$

3 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (4x^{-3} + 6)(3x)$

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

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

4 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (-5x^{-3} + 7)(4x^2 + 6)$

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

A	B	C	D
$f'(x) = (15x^{-4})(4x^2 + 6) + (-5x^{-3} + 7)(8x)$	$f'(x) = (15x^{-4})(4x^2 + 6)$	$f'(x) = (15x^{-4})(8x)$	$f'(x) = (15x^{-4})(4x^2 + 6) + (-5x^{-3} + 7)(8x)$

5 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (3x^{-2} - 3)(2x^2)$

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

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

6 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (2x^{-2} + 5)(3x^2)$

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

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

7 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (5x^{-2} - 4)(-2x - 7)$

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

A	B	C	D
$f'(x) = (-10x^{-3})(-2x - 7) - (5x^{-2} - 4)(-2)$	$f'(x) = (-10x^{-3})(-2x - 7)$	$f'(x) = (-10x^{-3})(-2)$	$f'(x) = (-10x^{-3})(-2x - 7) + (5x^{-2} - 4)(-2)$

8 if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (3x^{-3} - 3)(-2x^2 + 2)$

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

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