



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

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

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

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

**2** if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (-4x^4 - 3)(4x^2 - 4)$

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

A	B	C	D
$f'(x) = (-16x^3)(4x^2 - 4) - (-4x^4 - 3)(8x)$	$f'(x) = (-16x^3)(8x)$	$f'(x) = (-16x^3)(4x^2 - 4) + (-4x^4 - 3)(8x)$	$f'(x) = (-16x^3)(4x^2 - 4)$

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

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

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

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

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

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

**5** if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (-3x^4 - 7)(-4x)$

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

A	B	C	D
$f'(x) = (-12x^3)(-4x) - (-3x^4 - 7)(-4)$	$f'(x) = (-12x^3)(-4x) + (-3x^4 - 7)(-4)$	$f'(x) = (-12x^3)(-4)$	$f'(x) = (-12x^3)(-4x)$

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

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

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

**7** if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (3x^3 - 3)(-4x)$

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

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

**8** if  $h(x) = f(x)g(x)$ ,  $h'(x) = f'(x)g(x) + f(x)g'(x)$   
 $f(x) = (-3x^4 + 5)(3x^2 + 3)$

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

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