



Derivative Rules - Product Rule Positive Fractional Powers to Derivative

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

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

A $f'(x) = (-\frac{10}{3}x^{-\frac{1}{3}})(-10x)$

B $f'(x) = (-\frac{10}{3}x^{-\frac{1}{3}})(-5x^2)$

C $f'(x) = (-\frac{10}{3}x^{-\frac{1}{3}})(-5x^2) - (-5x^{\frac{2}{3}} - 4)(-10x)$

D $f'(x) = (-\frac{10}{3}x^{-\frac{1}{3}})(-5x^2) + (-5x^{\frac{2}{3}} - 4)(-10x)$

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

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

A $f'(x) = (6x^{\frac{1}{2}})(4x - 3) + (4x^{\frac{3}{2}} + 2)(4)$

B $f'(x) = (6x^{\frac{1}{2}})(4)$

C $f'(x) = (6x^{\frac{1}{2}})(4x - 3) - (4x^{\frac{3}{2}} + 2)(4)$

D $f'(x) = (6x^{\frac{1}{2}})(4x - 3)$

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

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

A $f'(x) = (\frac{16}{3}x^{\frac{1}{3}})(-2x^2) + (4x^{\frac{4}{3}} + 7)(-4x)$

B $f'(x) = (\frac{16}{3}x^{\frac{1}{3}})(-2x^2)$

C $f'(x) = (\frac{16}{3}x^{\frac{1}{3}})(-4x)$

D $f'(x) = (\frac{16}{3}x^{\frac{1}{3}})(-2x^2) - (4x^{\frac{4}{3}} + 7)(-4x)$

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

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

A $f'(x) = (4x^{\frac{1}{3}})(-5x - 4)$

B $f'(x) = (4x^{\frac{1}{3}})(-5x - 4) + (3x^{\frac{4}{3}} - 2)(-5)$

C $f'(x) = (4x^{\frac{1}{3}})(-5x - 4) - (3x^{\frac{4}{3}} - 2)(-5)$

D $f'(x) = (4x^{\frac{1}{3}})(-5)$

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

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

A $f'(x) = (-\frac{9}{2}x^{\frac{1}{2}})(3x^2) - (-3x^{\frac{3}{2}} - 3)(6x)$

B $f'(x) = (-\frac{9}{2}x^{\frac{1}{2}})(3x^2)$

C $f'(x) = (-\frac{9}{2}x^{\frac{1}{2}})(6x)$

D $f'(x) = (-\frac{9}{2}x^{\frac{1}{2}})(3x^2) + (-3x^{\frac{3}{2}} - 3)(6x)$

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

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

A $f'(x) = (\frac{15}{2}x^{\frac{1}{2}})(4x)$

B $f'(x) = (\frac{15}{2}x^{\frac{1}{2}})(2x^2) + (5x^{\frac{3}{2}} - 3)(4x)$

C $f'(x) = (\frac{15}{2}x^{\frac{1}{2}})(2x^2)$

D $f'(x) = (\frac{15}{2}x^{\frac{1}{2}})(2x^2) - (5x^{\frac{3}{2}} - 3)(4x)$

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

$$f(x) = (5x^{\frac{1}{2}} + 2)(2x^2)$$

A $f'(x) = (\frac{5}{2}x^{-\frac{1}{2}})(2x^2)$

B $f'(x) = (\frac{5}{2}x^{-\frac{1}{2}})(2x^2) - (5x^{\frac{1}{2}} + 2)(4x)$

C $f'(x) = (\frac{5}{2}x^{-\frac{1}{2}})(4x)$

D $f'(x) = (\frac{5}{2}x^{-\frac{1}{2}})(2x^2) + (5x^{\frac{1}{2}} + 2)(4x)$

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

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

A $f'(x) = (\frac{9}{2}x^{\frac{1}{2}})(2x + 5)$

B $f'(x) = (\frac{9}{2}x^{\frac{1}{2}})(2x + 5) - (3x^{\frac{3}{2}} + 4)(2)$

C $f'(x) = (\frac{9}{2}x^{\frac{1}{2}})(2)$

D $f'(x) = (\frac{9}{2}x^{\frac{1}{2}})(2x + 5) + (3x^{\frac{3}{2}} + 4)(2)$