



Derivative Rules - Product Rule Negative Fractional Powers to Derivative

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

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

A $f'(x) = (-6x^{-\frac{5}{2}})(-5)$

B $f'(x) = (-6x^{-\frac{5}{2}})(-5x)$

C $f'(x) = (-6x^{-\frac{5}{2}})(-5x) + (4x^{-\frac{3}{2}} - 4)(-5)$

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

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

$$f(x) = (-5x^{-\frac{1}{3}} - 7)(3x^2)$$

A $f'(x) = (\frac{5}{3}x^{-\frac{4}{3}})(3x^2) - (-5x^{-\frac{1}{3}} - 7)(6x)$

B $f'(x) = (\frac{5}{3}x^{-\frac{4}{3}})(3x^2) + (-5x^{-\frac{1}{3}} - 7)(6x)$

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

D $f'(x) = (\frac{5}{3}x^{-\frac{4}{3}})(6x)$

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

$$f(x) = (5x^{-\frac{1}{3}} + 4)(3x^2 - 6)$$

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

B $f'(x) = (-\frac{5}{3}x^{-\frac{4}{3}})(3x^2 - 6)$

C $f'(x) = (-\frac{5}{3}x^{-\frac{4}{3}})(3x^2 - 6) - (5x^{-\frac{1}{3}} + 4)(6x)$

D $f'(x) = (-\frac{5}{3}x^{-\frac{4}{3}})(3x^2 - 6) + (5x^{-\frac{1}{3}} + 4)(6x)$

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

$$f(x) = (5x^{-\frac{4}{3}} + 7)(-4x^2)$$

A $f'(x) = (-\frac{20}{3}x^{-\frac{7}{3}})(-4x^2) + (5x^{-\frac{4}{3}} + 7)(-8x)$

B $f'(x) = (-\frac{20}{3}x^{-\frac{7}{3}})(-8x)$

C $f'(x) = (-\frac{20}{3}x^{-\frac{7}{3}})(-4x^2) - (5x^{-\frac{4}{3}} + 7)(-8x)$

D $f'(x) = (-\frac{20}{3}x^{-\frac{7}{3}})(-4x^2)$

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

$$f(x) = (5x^{-\frac{3}{2}} + 7)(-5x^2)$$

A $f'(x) = (-\frac{15}{2}x^{-\frac{5}{2}})(-5x^2) - (5x^{-\frac{3}{2}} + 7)(-10x)$

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

C $f'(x) = (-\frac{15}{2}x^{-\frac{5}{2}})(-5x^2) + (5x^{-\frac{3}{2}} + 7)(-10x)$

D $f'(x) = (-\frac{15}{2}x^{-\frac{5}{2}})(-10x)$

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

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

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

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

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

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

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

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

A $f'(x) = (-\frac{5}{2}x^{-\frac{3}{2}})(8x)$

B $f'(x) = (-\frac{5}{2}x^{-\frac{3}{2}})(4x^2) - (5x^{-\frac{1}{2}} - 4)(8x)$

C $f'(x) = (-\frac{5}{2}x^{-\frac{3}{2}})(4x^2) + (5x^{-\frac{1}{2}} - 4)(8x)$

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

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

$$f(x) = (5x^{-\frac{2}{3}} - 6)(5x^2 + 3)$$

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

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

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

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