



Derivative Rules - Product Rule Positive Fractional Powers as Radical to

Derivative

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

$$f(x) = (2\sqrt[3]{x^4} + 5)(4x^2)$$

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

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

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

D $f'(x) = (\frac{8}{3}x^{\frac{1}{3}})(8x)$

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

$$f(x) = (2\sqrt{x} - 5)(-4x)$$

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

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

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

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

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

$$f(x) = (-2\sqrt[3]{x^2} + 5)(4x^2)$$

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

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

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

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

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

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

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

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

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

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

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

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

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

B $f'(x) = (-\frac{15}{2}x^{\frac{1}{2}})(-2x^2 - 7) + (-5x^{\frac{3}{2}} + 2)(-4x)$

C $f'(x) = (-\frac{15}{2}x^{\frac{1}{2}})(-2x^2 - 7)$

D $f'(x) = (-\frac{15}{2}x^{\frac{1}{2}})(-2x^2 - 7) - (-5x^{\frac{3}{2}} + 2)(-4x)$

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

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

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

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

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

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

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

$$f(x) = (-3\sqrt[3]{x^4} - 7)(4x^2)$$

A $f'(x) = (-4x^{\frac{1}{3}})(4x^2) + (-3x^{\frac{4}{3}} - 7)(8x)$

B $f'(x) = (-4x^{\frac{1}{3}})(4x^2) - (-3x^{\frac{4}{3}} - 7)(8x)$

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

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

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

$$f(x) = (-5\sqrt[3]{x} - 7)(-5x)$$

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

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

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

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