



Derivative Rules - Product Rule Negative Fractional Powers as Radical to

Derivative

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

$$f(x) = \left(-\frac{5}{\sqrt[3]{x}} + 6\right)(3x^2 - 6)$$

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

2 Find the derivative $f'(x)$ using the product rule. $f(x) = \left(\frac{3}{\sqrt{x}} - 4\right)(3x - 7)$

A $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3)$	B $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3x - 7)$
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C $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3x - 7) + (3x^{-\frac{1}{2}} - 4)(3)$	D $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3x - 7) - (3x^{-\frac{1}{2}} - 4)(3)$
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3 Find the derivative $f'(x)$ using the product rule. $f(x) = \left(\frac{5}{\sqrt[3]{x}} + 7\right)(-2x^2)$

A $f'(x) = \left(-\frac{5}{3}x^{-\frac{4}{3}}\right)(-2x^2) + (5x^{-\frac{1}{3}} + 7)(-4x)$	B $f'(x) = \left(-\frac{5}{3}x^{-\frac{4}{3}}\right)(-2x^2)$
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C $f'(x) = \left(-\frac{5}{3}x^{-\frac{4}{3}}\right)(-4x)$	D $f'(x) = \left(-\frac{5}{3}x^{-\frac{4}{3}}\right)(-2x^2) - (5x^{-\frac{1}{3}} + 7)(-4x)$
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4 Find the derivative $f'(x)$ using the product rule.

$$f(x) = \left(-\frac{5}{\sqrt{x}} - 4\right)(5x + 7)$$

A $f'(x) = \left(\frac{5}{2}x^{-\frac{3}{2}}\right)(5x + 7) + (-5x^{-\frac{1}{2}} - 4)(5)$	B $f'(x) = \left(\frac{5}{2}x^{-\frac{3}{2}}\right)(5x + 7) - (-5x^{-\frac{1}{2}} - 4)(5)$
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C $f'(x) = \left(\frac{5}{2}x^{-\frac{3}{2}}\right)(5x + 7)$	D $f'(x) = \left(\frac{5}{2}x^{-\frac{3}{2}}\right)(5)$
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5 Find the derivative $f'(x)$ using the product rule. $f(x) = \left(-\frac{5}{\sqrt{x^3}} + 6\right)(5x^2)$

A $f'(x) = \left(\frac{15}{2}x^{-\frac{5}{2}}\right)(5x^2) + (-5x^{-\frac{3}{2}} + 6)(10x)$	B $f'(x) = \left(\frac{15}{2}x^{-\frac{5}{2}}\right)(5x^2)$
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C $f'(x) = \left(\frac{15}{2}x^{-\frac{5}{2}}\right)(10x)$	D $f'(x) = \left(\frac{15}{2}x^{-\frac{5}{2}}\right)(5x^2) - (-5x^{-\frac{3}{2}} + 6)(10x)$
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6 Find the derivative $f'(x)$ using the product rule.

$$f(x) = \left(\frac{3}{\sqrt{x^3}} + 3\right)(3x^2 + 2)$$

A $f'(x) = \left(-\frac{9}{2}x^{-\frac{5}{2}}\right)(3x^2 + 2)$	B $f'(x) = \left(-\frac{9}{2}x^{-\frac{5}{2}}\right)(3x^2 + 2) - (3x^{-\frac{3}{2}} + 3)(6x)$
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C $f'(x) = \left(-\frac{9}{2}x^{-\frac{5}{2}}\right)(3x^2 + 2) + (3x^{-\frac{3}{2}} + 3)(6x)$	D $f'(x) = \left(-\frac{9}{2}x^{-\frac{5}{2}}\right)(6x)$
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7 Find the derivative $f'(x)$ using the product rule.

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

A $f'(x) = (x^{-\frac{3}{2}})(3x + 7) - (-2x^{-\frac{1}{2}} + 5)(3)$	B $f'(x) = (x^{-\frac{3}{2}})(3x + 7) + (-2x^{-\frac{1}{2}} + 5)(3)$
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C $f'(x) = (x^{-\frac{3}{2}})(3x + 7)$	D $f'(x) = (x^{-\frac{3}{2}})(3)$
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8 Find the derivative $f'(x)$ using the product rule. $f(x) = \left(\frac{3}{\sqrt{x}} - 5\right)(3x^2)$

A $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3x^2)$	B $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3x^2) + (3x^{-\frac{1}{2}} - 5)(6x)$
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C $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(3x^2) - (3x^{-\frac{1}{2}} - 5)(6x)$	D $f'(x) = \left(-\frac{3}{2}x^{-\frac{3}{2}}\right)(6x)$
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