



Derivative Rules - Chain Rule Negative Fractional Powers to Derivative

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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