



Derivative Rules - Chain Rule Negative Powers (with Rule) to Derivative

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

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

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

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

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

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

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

$$f(x) = (-3x - 4)^{-3}$$

A $f'(x) = 9(-3x - 4)^{-4}$

B $f'(x) = -3(-3x - 4)^{-4}$

C $f'(x) = 9(-3x - 4)^{-3}$

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

$$f(x) = (3x + 6)^{-1}$$

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

B $f'(x) = 3(3x + 6)^{-2}$

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

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

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

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

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

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

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

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

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

$$f(x) = (x + 7)^{-1}$$

A $f'(x) = -(x + 7)^{-1}$

B $f'(x) = -(x + 7)^{-2}$

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

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

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

A $f'(x) = -6(3x - 6)^{-3}$

B $f'(x) = 3(3x - 6)^{-3}$

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

D $f'(x) = -2(3x - 6)^{-3}$

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

$$f(x) = (3x - 3)^{-3}$$

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

B $f'(x) = -3(3x - 3)^{-4}$

C $f'(x) = -9(3x - 3)^{-4}$

D $f'(x) = -9(3x - 3)^{-3}$

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

$$\text{if } y = f(g(x)), y' = f'(g(x)) \cdot g'(x)$$

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

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

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

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

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