



## Derivative Rules - Chain Rule Positive Powers (with Rule) to Derivative

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

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

$$f(x) = (-x^2 + 6)^2$$

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

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

C  $f'(x) = 2(-x^2 + 6)^2(-2x)$

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

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

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

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

A  $f'(x) = 3(-2x^2 + 5)^3(-4x)$

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

C  $f'(x) = 3(-2x^2 + 5)^2(-4x)$

D  $f'(x) = (-2x^2 + 5)^2(-4x)$

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

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

$$f(x) = (2x^2 + 2)^4$$

A  $f'(x) = 4(2x^2 + 2)^3$

B  $f'(x) = 4(2x^2 + 2)^4(4x)$

C  $f'(x) = 4(2x^2 + 2)^3(4x)$

D  $f'(x) = (2x^2 + 2)^3(4x)$

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

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

$$f(x) = (-3x + 5)^4$$

A  $f'(x) = -12(-3x + 5)^3$

B  $f'(x) = 4(-3x + 5)^3$

C  $f'(x) = -12(-3x + 5)^4$

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

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

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

$$f(x) = (x^2 - 2)^3$$

A  $f'(x) = (x^2 - 2)^2(2x)$

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

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

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

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

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

$$f(x) = (x + 4)^2$$

A  $f'(x) = (x + 4)$

B  $f'(x) = 2(x + 4)$

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

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

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

$$f(x) = (-3x^2 - 7)^2$$

A  $f'(x) = 2(-3x^2 - 7)$

B  $f'(x) = 2(-3x^2 - 7)^2(-6x)$

C  $f'(x) = (-3x^2 - 7)(-6x)$

D  $f'(x) = 2(-3x^2 - 7)(-6x)$

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

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

$$f(x) = (3x^2 - 4)^2$$

A  $f'(x) = 2(3x^2 - 4)$

B  $f'(x) = 2(3x^2 - 4)(6x)$

C  $f'(x) = (3x^2 - 4)(6x)$

D  $f'(x) = 2(3x^2 - 4)^2(6x)$