



Derivative Rules - Chain Rule Positive Fractional Powers as Radical to

Derivative

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

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

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

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

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

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

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

$$f(x) = \sqrt{(-3x - 6)}$$

A $f'(x) = \frac{1}{2}(-3x - 6)^{-\frac{1}{2}}$

B $f'(x) = -3(-3x - 6)^{-\frac{1}{2}}$

C $f'(x) = -\frac{3}{2}(-3x - 6)^{\frac{1}{2}}$

D $f'(x) = -\frac{3}{2}(-3x - 6)^{-\frac{1}{2}}$

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

$$f(x) = \sqrt{(2x + 6)^3}$$

A $f'(x) = \frac{3}{2}(2x + 6)^{\frac{1}{2}}$

B $f'(x) = 2(2x + 6)^{\frac{1}{2}}$

C $f'(x) = 3(2x + 6)^{\frac{1}{2}}$

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

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

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

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

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

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

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

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

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

A $f'(x) = \frac{2}{3}(-2x^2 + 6)^{-\frac{1}{3}}$

B $f'(x) = \frac{2}{3}(-2x^2 + 6)^{\frac{2}{3}}(-4x)$

C $f'(x) = \frac{2}{3}(-2x^2 + 6)^{-\frac{1}{3}}(-4x)$

D $f'(x) = (-2x^2 + 6)^{-\frac{1}{3}}(-4x)$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$f(x) = \sqrt[3]{(-3x - 6)^2}$$

A $f'(x) = -3(-3x - 6)^{-\frac{1}{3}}$

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

C $f'(x) = \frac{2}{3}(-3x - 6)^{-\frac{1}{3}}$

D $f'(x) = -2(-3x - 6)^{-\frac{1}{3}}$