



## Basic Derivatives - Positive Fractional Power with Coefficient as Radical to Derivative

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

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

A  $f'(x) = \frac{9}{2}x^{\frac{3}{2}}$

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

C  $f'(x) = \frac{9}{2}x^{\frac{3}{2}}$

D  $f'(x) = \frac{9}{2}x^{\frac{1}{2}}$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$f(x) = -8\sqrt{x}$$

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

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

C  $f'(x) = -8x^{-\frac{1}{2}}$

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

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

$$f(x) = 3\sqrt[3]{x}$$

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

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

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

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

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

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

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

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

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

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

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

$$f(x) = 5\sqrt{x^3}$$

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

B  $f'(x) = \frac{15}{2}x^{\frac{2}{3}}$

C  $f'(x) = \frac{15}{2}x^{\frac{1}{2}}$

D  $f'(x) = \frac{15}{2}x^{\frac{2}{3}}$

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

$$f(x) = -2\sqrt[3]{x^4}$$

A  $f'(x) = -\frac{8}{3}x^{\frac{1}{3}}$

B  $f'(x) = -\frac{8}{3}x^{\frac{4}{3}}$

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

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