



## Basic Derivatives - Negative Fractional Power with Coefficient as Radical (with Rule) to Derivative

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

$$f(x) = \frac{8}{\sqrt{x^5}}$$

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

B  $f'(x) = -20x^{-\frac{7}{2}}$

C  $f'(x) = -20x^{-\frac{5}{2}}$

D  $f'(x) = -20x^{-\frac{3}{2}}$

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

$$f(x) = \frac{8}{\sqrt[3]{x^2}}$$

A  $f'(x) = -\frac{16}{3}x^{-\frac{1}{3}}$

B  $f'(x) = -\frac{16}{3}x^{-\frac{2}{3}}$

C  $f'(x) = -\frac{16}{3}x^{-\frac{5}{3}}$

D  $f'(x) = 8x^{-\frac{5}{3}}$

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

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

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

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

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

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

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

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

A  $f'(x) = -\frac{9}{2}x^{-\frac{7}{2}}$

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

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

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

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

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

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

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

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

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

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

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

A  $f'(x) = 5x^{-\frac{8}{3}}$

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

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

D  $f'(x) = 5x^{-\frac{8}{3}}$

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

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

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

B  $f'(x) = -\frac{28}{3}x^{-\frac{7}{3}}$

C  $f'(x) = -\frac{28}{3}x^{-\frac{1}{3}}$

D  $f'(x) = -\frac{28}{3}x^{-\frac{4}{3}}$

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

$$\text{if } f(x) = a x^n, f'(x) = a n x^{n-1}$$

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

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

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

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

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