



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

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

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

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

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

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

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

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

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

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

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

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

- |   |                                      |   |                                      |
|---|--------------------------------------|---|--------------------------------------|
| A | $f'(x) = \frac{5}{2}x^{\frac{7}{2}}$ | B | $f'(x) = x^{\frac{3}{2}}$            |
| C | $f'(x) = \frac{5}{2}x^{\frac{3}{2}}$ | D | $f'(x) = \frac{5}{2}x^{\frac{5}{2}}$ |

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

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

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

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

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

- |   |                                      |   |                                       |
|---|--------------------------------------|---|---------------------------------------|
| A | $f'(x) = \frac{1}{3}x^{\frac{4}{3}}$ | B | $f'(x) = \frac{1}{3}x^{-\frac{2}{3}}$ |
| C | $f'(x) = x^{-\frac{2}{3}}$           | D | $f'(x) = \frac{1}{3}x^{\frac{1}{3}}$  |

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

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

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