



Derivative Rules - Sum Rule Positive Fractional Powers to Derivative

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

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

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

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

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

D $f'(x) = \frac{9}{2}x^{\frac{1}{2}} + 4$

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

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

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

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

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

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

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

A $f'(x) = \frac{10}{3}x^{-\frac{1}{3}} + 6x^2$

B $f'(x) = \frac{10}{3}x^{\frac{2}{3}} + 6x^3$

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

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

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

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

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

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

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

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

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

A $f'(x) = -x^{-\frac{2}{3}} + 3 - 10x$

B $f'(x) = -x^{\frac{1}{3}} + 3x - 10x^2$

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

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

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

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

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

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

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

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

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

A $f'(x) = -\frac{5}{3}x^{-\frac{2}{3}} + 9x^2$

B $f'(x) = -\frac{5}{3}x^{\frac{1}{3}} + 9x^3$

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

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

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

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

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

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

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