

12.8) Second order derivatives

Worked example

$$\text{If } y = 5x^3 - \frac{4}{x^3}, \text{ find } \frac{d^2y}{dx^2}$$

Your turn

$$\text{If } y = 3x^5 + \frac{4}{x^2}, \text{ find } \frac{d^2y}{dx^2}$$

$$\frac{d^2y}{dx^2} = 60x^3 + \frac{24}{x^4}$$

Worked example

If $f(x) = 3\sqrt{x} + \frac{1}{2\sqrt{x}}$, find $f''(x)$.

Your turn

If $f(x) = 3\sqrt{x} + \frac{1}{2\sqrt{x}}$, find $f''(x)$.

$$f''(x) = -\frac{3}{4}x^{-\frac{3}{2}} + \frac{3}{8}x^{-\frac{5}{2}}$$