

(C1-7.6a) Name:

Homework Questions 6 - 2nd Order Derivatives

For each questions find the 2nd order derivative

1. $y = 7x^3 - 2x^2 + 3$

$$\frac{d^2y}{dx^2} = 42x - 4$$

2. $f(x) = 4x^3 - 2x$

$$f'(x) = 24x$$

3. $f(x) = 8x^2 - 5x - 3$

$$f'(x) = 16$$

4. $y = \sqrt{x} + x^2$

$$\frac{d^2y}{dx^2} = -\frac{1}{4}x^{-\frac{3}{2}} + 2$$

5. $y = \frac{1}{x^2} + \frac{1}{x^3}$

$$\frac{d^2y}{dx^2} = -\frac{1}{4}x^{-\frac{3}{2}} - \frac{2}{9}x^{-\frac{5}{3}}$$

6. $f(x) = 6 - 5x + \frac{7}{x}$

$$f'(x) = 14x^{-3}$$

7. $f(x) = 6\sqrt{x} - \frac{4}{x^2}$

$$f'(x) = -\frac{3}{2}x^{-\frac{3}{2}} - 24x^{-4}$$

8. $y = (x + 2)(x - 3)$

$$\frac{d^2y}{dx^2} = 2$$

9. $y = (x + 6)^2$

$$\frac{d^2y}{dx^2} = 2$$

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

$$f'(x) = -\frac{10}{3} + \frac{1}{4}x^{-\frac{3}{2}}$$

