

$$\bullet f(x) = \frac{2}{x} - x^{-7} + \frac{x^3}{6}$$

$$\rightarrow f(x) = 2x^{-1} - x^{-7} + \frac{1}{6}x^3$$

$$f'(x) = -2x^{-2} + 7x^{-8} + \frac{3}{6}x^2$$

$$f'(x) = -2x^{-2} + 7x^{-8} + \frac{1}{2}x^2$$

$$f'(x) = -\frac{2}{x^2} + \frac{7}{x^8} + \frac{1}{2}x^2$$

$$\bullet y = -\frac{1}{5}x^2 - 3x^{-3} + 4x - 7$$

$$y' = -(2)\frac{1}{5}x - (3)3x^{-4} + (1)(4) - 0$$

$$y' = -\frac{2}{5}x + 9x^{-4} + 4$$

$$y' = -\frac{2}{5}x + \frac{9}{x^4} + 4$$

$$\bullet y = \frac{1}{2x} + 3x^2 - 8x$$

$$y' = \left(-\frac{1}{2} \cdot \frac{1}{x}\right) + 3(2)x - (1)(8)$$

$$y' = \left(-\frac{1}{2} \cdot x^{-1-1}\right) + 6x - 8$$

$$y' = \left(-\frac{1}{2} \cdot -x^{-2}\right) + 6x - 8$$

$$y' = \left(-\frac{1}{2} \cdot -\frac{1}{x^2}\right) + 6x - 8$$

$$y' = \frac{1}{2x^2} + 6x - 8$$