

Name: _____

a) Find $f'(2)$ for $f(x) = (2x^4 + 8x + 3)(3x^2 - 6x + 1)$

$$f'(x) = (2x^4 + 8x + 3)(6x - 6) + (3x^2 - 6x + 1)(8x^3 + 8)$$

$$\begin{aligned} f'(2) &= 51(6) + 1(72) \\ &= 378 \end{aligned}$$

b) Find $f'(1)$ for $f(x) = \frac{9x^2 + 7x}{4x^3 - 2}$

$$f'(x) = \frac{(4x^3 - 2)(18x + 7) - (9x^2 + 7x)(12x^2)}{(4x^3 - 2)^2}$$

$$f'(1) = \frac{2(25) - 16(12)}{2^2}$$

$$= \frac{-142}{4} \quad \text{or} \quad -\frac{71}{2} \quad \text{or} \quad -35.5$$