Derivative Review Scavenger Hunt

$$\frac{d}{dx}\left(x - x^5\right)$$

$$y = -18 - 39(x - 2)$$

$$\frac{d}{dx}\left[(x^2 - 1)(2 - x)\right]$$

$$\frac{dy}{dx} = 1 - 5x^4$$

$$\frac{d}{dx}\left[\left(3x^2 - 8x\right)\left(x^2 + 2\right)\right]$$

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

$$\frac{d}{dx}\left[\left(x^2 + x + 1\right)\left(x + 1\right)\right]$$

$$\frac{dy}{dx} = 12x^3 - 24x^2 + 12x - 16$$

$$\frac{d}{dx}\left(x^3 - x\right)^2$$

$$\frac{dy}{dx} = 3x^2 + 4x + 2$$

$$\frac{d}{dx}\left(\frac{6}{3-x}\right)$$

$$\frac{dy}{dx} = 6x^5 - 8x^3 + 2x$$

$$\frac{d}{dx}\left(\frac{x^4 + 4x + 4}{1 - x^2}\right)$$

$$\frac{dy}{dx} = \frac{6}{(3-x)^2}$$

$$\frac{d}{dx}\left[\left(\frac{(2x+1)(3x+2)}{(x+1)(x-1)}\right)\right]$$

$$\frac{dy}{dx} = \frac{-2x^5 + 4x^3 + 4x^2 + 8x + 4}{\left(1-x^2\right)^2}$$

$$\frac{d}{dx}\left(5x^{-2} - 2x^{-5}\right)$$

$$\frac{dy}{dx} = \frac{-7x^2 - 16x - 7}{\left(x^2 - 1\right)^2}$$

$$\frac{d}{dx}\left(\frac{x^2 - 4}{x + 2}\right)$$

$$\frac{dy}{dx} = -10x^{-3} + 10x^{-6}$$

$$\frac{d}{dx}\left[(x-2)\left(x+\frac{1}{x}\right)\right]$$

$$\frac{dy}{dx}=1$$

$$\frac{d}{dx}\left(\frac{x}{x^2 + x + 1}\right)$$

$$\frac{dy}{dx} = 2x - 2 + 2x^{-2}$$

$$\frac{d}{dx}\left[\left(x^5 + x^{-2}\right)\left(x^3 - x^{-7}\right)\right]$$

$$\frac{dy}{dx} = \frac{-x^2 + 1}{\left(x^2 + x + 1\right)^2}$$

Determine the equation of the tangent line

$$f(x) = \frac{x-1}{x+1} \quad \text{at the point } (1,0)$$

$$\frac{dy}{dx} = 8x^7 + 2x^{-3} + 1 + 9x^{10}$$

Determine the equation of the tangent line

$$f(x) = \left(x^2 + x\right)\left(1 - x^2\right) \quad \text{at the point } (2,\text{-}18)$$

$$y = \frac{-1}{2}(x - 1)$$