

2.2 Review

5) Find the derivative of $y = 3$

$$y' = 0$$

7) $y = x^4$

$$y' = 4x^{4-1}$$

$$= 4x^3$$

$$3 = 3x^0$$

$$3x = 3x^1$$

$$3x^2 = 3x^2$$

$$0(3x^{-1}) = 0$$

$$1(3x^0) = 3$$

$$2(3x^1) = 6x$$

15) $s(t) = t^3 - 2t + 4$

$$s'(t) = 3t^2 - 2t^0$$

$$= 3t^2 - 2$$

25)

Function

$$y = \frac{1}{(4x)^3} = (4x)^{-3} = 4^{-3} x^{-3}$$

$$= \frac{1}{64} x^{-3}$$

Rewrite

Differentiate

$$\left(\frac{1}{64}\right)(-3x^{-3-1})$$

Simplify

$$= -\frac{3}{64} x^{-4}$$

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

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

$$= 2x - 4 + 3x^{-2}$$

$$f'(x) = 2 - 0 + 3(-2x^{-3})$$

$$= 2 - 6x^{-3}$$

$$= 2 - \frac{6}{x^3}$$

$$55) y = \frac{1}{2}x^2 + 5x$$

$$y' = \frac{1}{2}(2x) + 5$$

$$= x + 5 \quad \text{function of the slope for } y \leftarrow$$

When is the slope zero?

$$0 = x + 5$$

$$x = -5$$

$$y = \frac{1}{2}(-5)^2 + 5(-5)$$

$$= -12.5$$

$$(-5, -12.5)$$

