

Name: _____

Find $\frac{dy}{dx}$:

a) $y = \frac{4}{\sqrt[8]{1+5x^3}}$

$$y = 4(1+5x^3)^{-1/8}$$

$$\frac{dy}{dx} = -\frac{1}{2}(1+5x^3)^{-9/8} \cdot 15x^2$$

or $\frac{dy}{dx} = \frac{-15x^2}{2 \cdot \sqrt[8]{(1+5x^3)^9}}$

b) $y = x^3(1+7x)^{11}$

Product Rule!

$$\begin{aligned} \frac{dy}{dx} &= x^3 [11(1+7x)^{10} \cdot 7] + (1+7x)^{11} \cdot 3x^2 \\ &= 77x^3(1+7x)^{10} + 3x^2(1+7x)^{11} \end{aligned}$$