

Name: _____

How fast is the slope of the tangent to $y = \frac{8}{x+3}$ changing when $x = 1$ and $\frac{dx}{dt} = 0.2$ units/s?

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

$$y' = -8(x+3)^{-2}$$

$$\frac{dy'}{dt} = \frac{dy'}{dx} \frac{dx}{dt}$$

$$= 16(x+3)^{-3} \frac{dx}{dt}$$

$$= 16(4)^{-3} (0.2)$$

$$= 0.05 \frac{\text{units}}{\text{s}}$$