

Exit Ticket upload: (see #6)

$$x^2 + y^2 = 25$$

a) find dy/dt when $x=3$, $y=4$, and $dx/dt=8$

$$2x \frac{dx}{dt} + 2y \frac{dy}{dt} = 25$$

$$2(3)(8) + 2(4) \frac{dy}{dt} = 25$$

$$48 + 8 \frac{dy}{dt} = 25$$

$$8 \frac{dy}{dt} = -23$$

$$\boxed{\frac{dy}{dt} = -\frac{23}{8}}$$

b) find dx/dt when $x=4$, $y=3$, and $dy/dt=-2$

$$2x \frac{dx}{dt} + 2y \frac{dy}{dt} = 25$$

$$2(4) \frac{dx}{dt} + 2(3)(-2) = 25$$

$$-12$$

$$8 \frac{dx}{dt} = 37$$

$$\boxed{\frac{dx}{dt} = \frac{37}{8}}$$