Calculus 120 **Differentiation With Respect to Time**

1. Find $\frac{dy}{dt}$ **Remember to *Differentiate with respect to time:***

a) $x^2 + xy^2 = 12y$ **, if** $x = 3,\ y = 1$**, and** $\frac{dx}{dt} = 2$

b) $x^2 + 2y = 4$**, if** $x = 4$**, and** $\frac{dx}{dt} = 5$

c) If $x^3 + y^3 = 9$ **and** $\frac{dx}{dt} = 4$**, find** $\frac{dy}{dt}$ **when** $x = 2$

2. Find $\frac{dx}{dt}$ **Remember to *Differentiate with respect to time:***

a) $x^3 + 2y^2 = 10$ **, if** $x = 2,$ **and** $\frac{dy}{dt} = 9$

b) $xy^2 = 45$ **, if** $y = 3,$ **and** $\frac{dy}{dt} = 6$

c) $4xy + y^2 = 28$ **, if** $y = 2,$ **and** $\frac{dy}{dt} = 4$