Pre-Calculus 1 Name _____

Parametrics Review #2

1. For each of the following, determine the type of equation it is, parametric or rectangular.

a. $x = 5t - 3$, $y = 3t^2 - 5$

b. $y = 3x^2 + 6x - 5$

c. $x = y - 9$

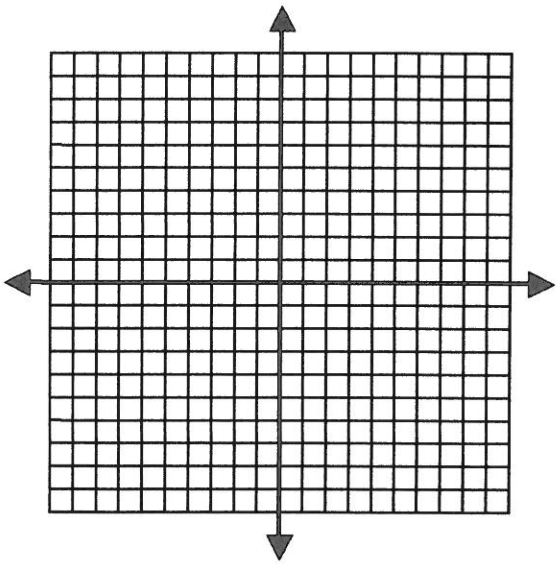
d. $t = 5x^2 - 1$, $y = 3t + 15$

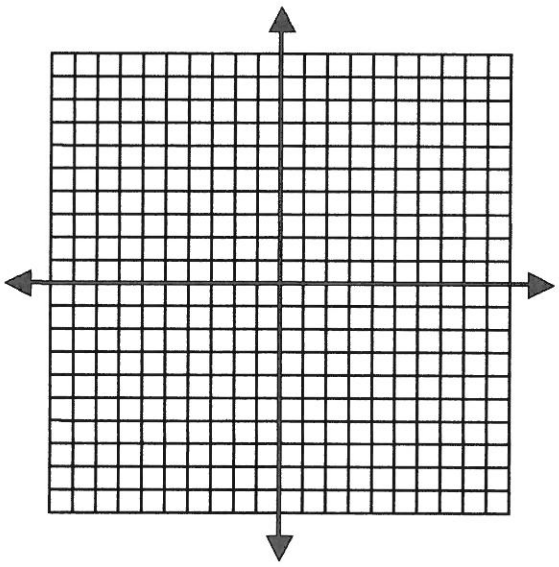
e. $y = 3t + 2$

2. Graph the following by hand, then check with your calculator. Make a table values for set of specified t-values.

a. $\begin{cases} x = \sqrt{t^2 + 1} \\ y = 2 - t \end{cases}$ $-2 \le t \le 6$

b. $\begin{cases} x = t \\ y = \dfrac{t^2}{4} \end{cases}$ $-4 \le t \le 4$





3. Eliminate the parameter to write the parametric equations as a rectangular equation.

a. $\begin{cases} x = \dfrac{1}{t+5} \\ y = 3t - 2 \end{cases}$

b. $\begin{cases} x = 3\sec(t) - 2 \\ y = 4 + 5\tan(t) \end{cases}$

c. $\begin{cases} x = 6\cos(t) - 7 \\ y = 6\sin(t) + 1 \end{cases}$

d. $\begin{cases} x = -4 + 3\cos(t) \\ y = 7 - 2\sin(t) \end{cases}$

4. Write **two** new sets of parametric equations for the following rectangular equations.

a. $y = \dfrac{1}{4}x^2 + x + 1$

b. $x = \sqrt{y^2 - 5}$

5. For each of the following write a pair of parametric equations for the curve.

a. $(x+7)^2 + y^2 = 16$

b. $(x+4)^2 + \frac{(y-3)^2}{16} = 1$

c. $\frac{(x-9)^2}{11} - \frac{(y+1)^2}{25} = 1$

d. $\frac{(y-3)^2}{49} - \frac{(x+6)^2}{64} = 1$

6. Write a pair of parametric equations for a circle with center at (-2, 5) and containing the point (3, 1).

7. The Robots are at it again. Robot A is moving from (2, 5) to (8, 2) in 3 seconds, Robot B is moving from (3, 0) to (7, 6) in 4 seconds.

a. Write a pair of parametric equations for both robots.

b. Do the robots cross paths? If so, where?

c. Do the robots collide?