Parametric Equations

Name_____

Date_____

Find each point based on the parametric equations:

1.) $x = 4 - 3t$ and $y = 2t + 5$
    a.) $t = 3$ b.) $t = -2$

3.) $x = t^3 - 4t$ and $y = \sqrt{t + 1}$
    a.) $t = 3$ b.) $t = 15$

2.) $x = t^2 + 5t$ and $y = 3 - t^2$
    a.) $t = -1$ b.) $t = 0$

4.) $x = |t + 3|$ and $y = \frac{1}{t}$
    a.) $t = -8$ b.) $t = \frac{1}{2}$

For each below, fill in the table, then graph the parametric equations:

5.) $x(t) = 4t - 1$ $y(t) = -2t$

t	x	y
-3		
-2		
-1		
0		
1		
2		
3		
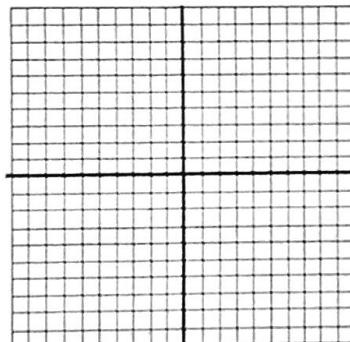
7.) $x(t) = 4\sin(t)$ $y(t) = t^2$

t	x	y
-3		
-2		
-1		
0		
1		
2		
3		
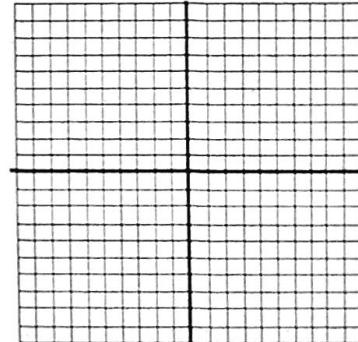
6.) $x(t) = 3t$ $y(t) = t^2 - 4$

t	x	y
-3		
-2		
-1		
0		
1		
2		
3		
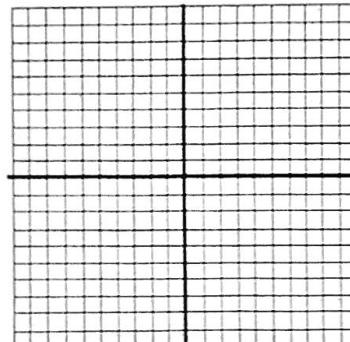
8.) $x(t) = t^2 - t$ $y(t) = 4 - t$

t	x	y
-3		
-2		
-1		
0		
1		
2		
3		
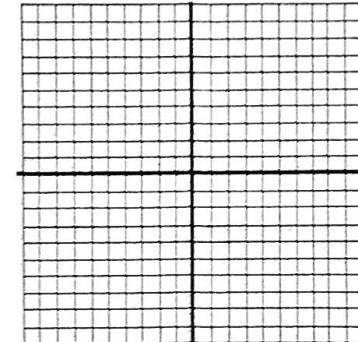
Eliminating the Parameter

Name_____

Date_____

Eliminate the parameter in each set of equations. Your final answer should be fully simplified and in rectangular form (all x's and y's, no t's).

Remember that you will occasionally need to use $\sin^2(x) + \cos^2(x) = 1$

1.) $x(t) = 5 + t$
   $y(t) = 3t + 1$

5.) $x(t) = 3\cos(t)$
   $y(t) = 4\sin(t)$

2.) $x(t) = 6t - 1$
   $y(t) = 2t + 11$

6.) $x(t) = 8 - t$
   $y(t) = t^2 + 10t - 100$

3.) $x(t) = \frac{3}{t}$
   $y(t) = 6t + 1$

7.) $x(t) = 10\cos(t)$
   $y(t) = 5\sin(t)$

4.) $x(t) = \sqrt{t - 7}$
   $y(t) = t^2 + 9$

8.) $x(t) = \frac{1}{t}$
   $y(t) = \frac{4}{t}$

9) $x(t) = 2 + 5\sec t$
   $y(t) = 1 + 3\tan t$