SECTION 7.1: PARAMETRIC EQUATIONS

(1) Sketch the parametric equations below by plotting points. Give the orientation of the curve. Suppose the parameter t can be any real number.

(a) $x(t) = t - 1,\ y(t) = 2t + 4$

(b) $x(t) = \cos(t),\ y(t) = \sin(t)$

(c) $x(t) = t^3,\ y(t) = 2t + 1$

(d) $x(t) = 2 + \cos(t),\ y(t) = 2\sin(t)$

(2) For each problem above, eliminate the parameter.
(3) Find two different ways to parametrize $y = x^2$ on the interval $[-1, 1]$. (You will need to include an interval for t.)

(4) For the parametric equations $x(t) = t^2,\ y(t) = e^{t^2}$, sketch the graph by eliminating the parameter. **Pay attention to the domain as defined by the parametric equations!**

(5) Use technology to sketch the parametric equations below.
(a) $x(t) = 1 - \sin(t),\ y(t) = 1 - \cos(t)$

(b) $x(t) = 3\cos(t) + \cos(3t),\ y(t) = 3\sin(t) - \sin(3t)$