Math 3330 - Quiz 1

Name:_____

1. Compute the following without a calculator:
   - $\cos(\pi/2)$
   - $\sec(\pi/3)$
   - $\sin(11\pi/3)$
   - $\tan(14\pi/6)$
   - $\csc(-\pi/6)$
   - $\cos^{-1}(1)$ all answers $0 \leq \theta \leq 2\pi$.
   - $\sec^{-1}(2)$ all answers $0 \leq \theta \leq 2\pi$.
   - $\sin^{-1}(\frac{-\sqrt{3}}{2})$ all answers $0 \leq \theta \leq 2\pi$.
2. Convert the following equations from Cartesian to parametric.
   - $y = x^2$
   - $y^2 - 4x = 2y + 1$
   - $x^2 + y^2 = 4$
3. Convert the following equations from parametric to Cartesian.
   - $x = 2t - 1$, $y = t^2 + 2$
   - $x = t^3$, $y = t$
   - $x = \cos(3t)$, $y = \sin(3t)$
4. Graph the following equations given in parametric.
   - $x = 2t - 1$, $y = t^2 + 2$
   - $x = t^3$, $y = t$
   - $x = \cos(3t)$, $y = \sin(3t)$
   - $x = t\cos(t)$, $y = t\sin(t)$
5. Define the parametric equation:

$$x = e^{2t-2}\sin(t),\ y = e^{2t-2}\cos(t)$$

   (a) Find the line tangent to the equation at the point $t = 1$.

(b) Find the second derivative of the given equation.

6. Find the area under the curve given by the parametric equation from $t = 1$ to $t = 3$.

$$x = 3t^2 - 2,\ y = e^{2t^2-2}$$