Name: _____

Parametric Equations and Calculus

1)   Eliminate the parameter (t) in the following two equations, to get the rectangular equation.

   a) $x = \cos t,$ $y = \sin t,$ $0 \le t \le 2\pi$

   b) $x = 4\cos t,$ $y = 2\sin t,$ $0 \le t \le 2\pi$

   c) $x = \cos 2t,$ $y = \sin t,$ $0 \le t \le 2\pi$

   d) $x = \sec t,$ $y = \tan t,$ $-\frac{\pi}{2} < t < \frac{\pi}{2}$

   e) $x = t - \sin t,$ $y = 1 - \cos t,$ $0 \le t \le 2\pi$

   f) $x = t^3,$ $y = t^2,$ $-\infty < t < \infty$

   g) $x = t + 1,$ $y = t^2 + 4,$ $0 \le t < \infty$

2)   Eliminate the parameter t and find a rectangular equation:

    x = 2cos2t   and   y = 4 tant.

3)   Eliminate the parameter t and find a rectangular equation:

    x = 3csct-2   and   y = 1- 4cot t

4)   Eliminate the parameter t, for x = cos2t   y = sint

5)   Eliminate the parameter (θ) in the following two equations, to get the rectangular equation.

$$\begin{cases} 2x = 1 + 2\cos 2\theta \\ 3y = 2\sin\theta - 1 \end{cases}$$

6)   Eliminate the parameter x=cos2t   y=cost

7)   Eliminate the parameter t, for x=3 + 2sect   y = 2 + 4tant

8)   Eliminate the parameter (t) in the following two equations, to get the rectangular equation.

$$\begin{cases} y = e^{\cos 2t + \ln(2t+1)} \, e^{-\cos 2t} \\ x = \log(2t+1) \end{cases}$$