MTH142 - Fall 2014

Quiz - 6

Last Name:

First Name:

Person #:

Problem: For each of the parametrized curves below,

- Sketch the curve and indicate with an arrow the direction in which the curve is traced as t increases.
- Eliminate the parameter to find a cartesian equation (an equation in x and y) for the curve.

(a) (5 pts) $x = \cos t, \quad y = 1 + \sin t, \quad 0 \leq t \leq 2\pi.$

This is the circle with radius 1 centered at $(0, 1)$ traced once in counter-clockwise direction. The Cartesian equation for the curve is

$$x^2 + (y-1)^2 = 1$$

since $\cos^2 t + \sin^2 t = 1$.

(b) (5 pts) $x = t + 2, \quad y = t^2, \quad -2 \leq t \leq 2.$

This is the part of a parabola starting at $(0, 4)$ and ending at $(4, 4)$. The Cartesian equation for the curve is

$$y = (x-2)^2$$

since $t = x - 2$ and $y = t^2$.