

**Math 231/199: Calculus 2 Merit**

Worksheet 17

November 8, 2007

(1) For each system of parametric equations below, sketch the graph and find an  $x, y$ -equation of the system.

$$x = \cos(t) \quad y = \sin(t)$$

$$x = -1 + 2t \quad y = 3t$$

$$x = 1 + 2 \cos(t) \quad y = -2 + 2 \sin(t)$$

$$x = 1 + t \quad y = t^2 + 2$$

(2) Find parametric equations for the following equations:

The line segment from  $(0, 1)$  to  $(3, 4)$

The line segment from  $(-2, 4)$  to  $(6, 1)$

The portion of the parabola  $y = x^2 + 1$  from  $(1, 2)$  to  $(2, 5)$

The circle of radius 3 centered at  $(2, 1)$  drawn counterclockwise

The circle of radius 5 centered at  $(-1, 3)$  drawn clockwise

(3) Find all points of intersection of the following systems of parametric equations:

$$x = t \quad y = t^2 - 1 \quad \text{and} \quad x = 1 + s \quad y = 4 - s$$

$$x = t^2 + 3 \quad y = t^3 + t \quad \text{and} \quad x = 2 + s \quad y = 1 - s$$