King Fahd University of Petroleum & Minerals

Department of Mathematical Sciences

MATH - 201-01 Semester 123 **Quiz - 1**

Name: _____ ID#_____

Problem 1 Consider the parametrized curve

$$x = 5 - 2\cos\theta \qquad \text{and} \qquad y = 3 + \sin\theta.$$

Find the slope at $\theta = \dfrac{3\pi}{4}$ and determine the concavity at $\theta = \dfrac{3\pi}{4}$.

Problem 2.

(a) Find all possible polar coordinates for the point with rectangular coordinates $(-4, 4\sqrt{3})$.

(b) Find the area of the region that is inside $r = 2\cos\theta$ but outside $r = \sin\theta$.