

King Fahd University of Petroleum and Minerals  
Department of Mathematics and Statistics  
Math 201 - Quiz 2

Name:

Student ID #:

**Question 1.** Sketch the curve  $r^2 - \tan^2 \theta = 1$  by first finding its Cartesian equation.

**QUESTION 2 IS ON THE BACK OF THE PAGE.**

**Question 2.** Consider the circles  $r = 2 \cos \theta$  and  $r = 1$ .

- (1) Find the intersection points of the circles and sketch them on the same polar coordinate system.

- (2) Setup but do not evaluate an integral to calculate the length of the arc of the circle  $r = 2 \cos \theta$  contained in  $r = 1$ .

- (3) Setup but do not evaluate an integral to calculate the area of the region inside the circle  $r = 2 \cos \theta$  and outside the circle  $r = 1$ .