

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics and Statistics**  
**Math 201 - Quiz 4**

Name:

Student ID #:

**Question 1.** Consider the surface given by  $f(x, y) = \sqrt{x + y^2 - 3}$ . Find an equation of its level curve passing through the point  $(3, -1)$  and sketch it.

**Question 2.** Show that the limit  $\lim_{(x,y) \rightarrow (0,0)} \frac{xy^3}{x^2 + y^6}$  does not exist.

**QUESTION 3 IS ON THE BACK OF THE PAGE.**

**Question 3.** If the equation  $x + y + z = yz \ln(xz)$  defines  $z$  as function of  $x$  and  $y$ , then find  $\frac{\partial z}{\partial x}$ .