

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 201 Quiz 3
First Semester 2009–2010(092)

Name: _____

ID #: _____

Sec#: _____

1. Use polar coordinates to show that

$$\lim_{(x,y) \rightarrow (0,0)} \frac{x^2 y^2}{x^2 + y^2} = 0.$$

2. (a) Show that $\lim_{(x,y) \rightarrow (0,0)} \frac{xy}{x+y} = 0$ along any line (other than $x + y = 0$) passing through $(0, 0)$.
- (b) Show that $\lim_{(x,y) \rightarrow (0,0)} \frac{xy}{x+y}$ does not exist by choosing a suitable path through $(0, 0)$.