

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
MATH 201-12
Quiz # 4
Nov 15, 2013

NAME:

ID#:

SHOW ALL YOUR WORK

1. **(3points)** Show that $\lim_{(x,y) \rightarrow (0,0)} \frac{x}{\sqrt{x^2+y^2}}$ does not exist.

2. **(3points)** Compute $\lim_{(x,y) \rightarrow (0,0)} \tan^{-1} \left(\frac{|x|+|y|}{x^2+y^2} \right)$.

3. **(4points)** Find all second order partial derivatives of the function $f(x, y) = xe^{x^2y}$.