King Fahd University of Petroleum and Minerals

MATH 201 QUIZ #2 Term 142

Name:	ID:	Sec:

Q1. Find the **domain** and the **range** of $f(x, y) = \ln(9 - x^2 - y^2)$. Describe the **level curves** of f.

Q2 Find the limit, if it exists, or show that the limit does not exist.

$$\lim_{(x,y)\to(0,0)} \frac{xy}{\sqrt{x^2+y^2}},$$

$$\lim_{(x,y)\to(0,0)} \frac{x^3-xy^2}{x^2+y^2}$$

Q3 Find the first partial derivatives of $f(x, y) = \tan^{-1}(xy^2)$

Q4 Assume that the equation $\sin(x + y) + \sin(y + z) + \sin(x + z) = 0$ defines z as a differentiable functions of x,y. Find the values of $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$ at (π, π, π)