King Fahd University of Petroleum and Minerals

MATH 201 QUIZ #4 Term 171

Name:	Section: ☐	ID:

Q1. Find $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$ at the point $(1,0,1)$ if $x^3 + 2y^3 + z^3 - \cos(xyz) = 1$

Q2 Find an equation for the plane tangent to the surface $\ln(xy - yz) = xz$ at the point $(2, e^2, 1)$

Q3 Explain why the function $f(x,y) = 1 + x\log(xy-5)$ is differentiable at the point $(2,3)$. Then find the linearization at $(2,3)$.

Q4 If $z = \tan^{-1}(\frac{u^2}{\sqrt{v}})$ where $u = 2y - x$ and $v = 3x - y$, then find $\frac{\partial z}{\partial y}$ at $(x,y) = (2,2)$.