King Fahd University of Petroleum and Minerals

MATH 201 QUIZ #3 Term 172 *Dr. A. Khalfallah*

Name:	ID:

Q1. If $w = \frac{x^2 - y^3}{z^4}$ where x, y, z and w are differentiable functions with $x = u^2 + v^2$, $y = \frac{v}{u}$, and $z = u^v$. Find $\frac{\partial w}{\partial u}$ at $u = 1, v = 1$.

Q2 Find $\frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}$ at $(1,1,-1)$, if z is implicitly defined by the equation

$$2^{xz} + \tan^{-1}(y + z) = \frac{1}{2}.$$

Q3 Find the linearization of $f(x, y, z) = xz^2 - yz + \sin(xyz)$ at $(1, \pi, 1)$.