Math 225: Calculus III Name:_____

Quiz 4 *October 4, 2001* Section:_____

1. Suppose $F(x, y)$ is a function of x and y, and x and y are functions of the variables u and v. Given the following conditions

$$x(1,2) = 3, \quad \frac{\partial F}{\partial x}(3,4) = 11, \quad \frac{\partial x}{\partial u}(1,2) = -2, \quad \frac{\partial x}{\partial v}(1,2) = 7,$$

$$y(1,2) = 4, \quad \frac{\partial F}{\partial y}(3,4) = 15, \quad \frac{\partial y}{\partial u}(1,2) = 6, \quad \frac{\partial y}{\partial v}(1,2) = -8,$$

find $\dfrac{\partial F}{\partial u}$ and $\dfrac{\partial F}{\partial v}$ when $u = 1$ and $v = 2$.

2. Find the equation of the plane tangent to the surface defined by $z^5 - x^3y^2 + xz - y = 0$ at the point $(1, 1, 1)$.