MATH 251 - QUIZ 5

NAME:

I.D.:

   Instruction: Circle your answers and show all your work CLEARLY. Solutions with answer only and without supporting procedures will have little credit.

1. Given $w = \sqrt{u^2 + v^2 + z^2}$ and $u = 3e^t \sin s$, $v = 3e^t \cos s$ and $z = 4e^t$, find $\dfrac{\partial w}{\partial s}$ and $\dfrac{\partial w}{\partial t}$.

2. Assume that $z = z(x, y)$ satisfy the equation $x^5 + xy^2z + yz^3 = 3$. Find $\dfrac{\partial z}{\partial x}$ and $\dfrac{\partial z}{\partial y}$.

3. (Continuation of Problem 2) Given a surface with the equation $x^5 + xy^2z + yz^3 = 3$, find an equation of the plane tangent to this surface at the point $P(1, 1, 1)$.