"QUIZ" for Lecture 7

NAME: (print!) Krithika Patrachari **Section:** 22

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q7FirstLast.pdf) ASAP BUT NO LATER THAN Sept. 28, 8:00pm

1. Compute the partial derivatives with respect to x and y.

$$z = \ln(x^2 + y^3) \quad .$$

$$\frac{\partial z}{\partial x} = \frac{1}{(x^2+y^3)} \cdot (2x+0) = \frac{2x}{x^2+y^3}$$

$$\frac{\partial z}{\partial y} = \frac{1}{(x^2+y^3)} \cdot (0+3y^2) = \frac{3y^2}{x^2+y^3}$$

2. Find an equation of the tangent plane to the given surface at the specified point.

$$z = x^2 + y^2 + 2 \quad , \quad (1, 1, 4) \quad .$$

$$\frac{\partial}{\partial x} = 2x \rightarrow \text{at } (1,1) = 2$$

$$\frac{\partial}{\partial y} = 2y \rightarrow \text{at } (1,1) = 2$$

$$z - 4 = 2(x-1) + 2(x-1)$$

$$z = 2x - 2 + 2x - 2 + 4$$

$$z = 4x$$