"QUIZ" for Lecture 7

NAME: (print!) Yongshan Li **Section: 23**

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.

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

1. $\dfrac{\partial f}{\partial x} = (\ln(x^2 + y^3))'$

$= \dfrac{2x}{x^2 + y^3}$

$\dfrac{\partial f}{\partial y} = (\ln(x^2 + y^3))'$

$= \dfrac{3y^2}{y^3 + x^2}$

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

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

2. $1^2 + 1^2 + 2 = 4$ ✓

$f_x = \dfrac{\partial f}{\partial x}(x^2 + y^2 + 2) = 2x$

$f_y = \dfrac{\partial f}{\partial y}(x^2 + y^2 + 2) = 2y$

$f_x(1,1) = 2$

$f_y(1,1) = 2$

Equation: $z - 4 = 2(x-1) + 2(y-1)$