

"QUIZ" for Lecture 7

NAME: (print!) Rachal Bajji 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
- .

$$\frac{df}{dx} = \frac{\partial x}{x^2 + y^3}$$

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

$$\frac{df}{dy} = \frac{3y^2}{x^2 + y^3}$$

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

$$\textcircled{1} \quad z = x^2 + y^2 + 2, \quad (1, 1, 4)$$

$$z_0 = f(x_0, y_0)$$

$$= 1 \cdot 1 + 1 \cdot 1 + 2 = 1 + 2 + 2 = 4 = 4 \checkmark$$

$$\textcircled{2} \quad f_x = \frac{d}{dx}(x^2 + y^2 + 2) = 2x$$

$$f_y = \frac{d}{dy}(x^2 + y^2 + 2) = 2y$$

$$\textcircled{3} \quad f_x(1, 1) = 2$$

$$f_y(1, 1) = 2$$

$$\textcircled{4} \quad z - z_0 = f_x(x_0, y_0)(x - x_0) + f_y(x_0, y_0)(y - y_0)$$

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

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

$$z = 2x + 2y$$