

“QUIZ” for Lecture 7

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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  $y$ .

$$z = \ln(x^2 + y^3) \quad .$$
$$z_x = \frac{1}{x^2 + y^3} \cdot (2x) = \frac{2x}{x^2 + y^3}$$

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

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

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

$$4 = 1^2 + 1^2 + 2 \quad 4 = 4 \quad \text{The point is on the surface}$$

$$z_x = 2x$$

$$z_y = 2y$$

$$\text{tangent plane: } z - 4 = 2(x - 1) + 2(y - 1)$$

$$z = 2x + 2y$$