

“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 .

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

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

$$z = x^2 + y^2 + 2 \quad , \quad (1, 1, 4) \quad .$$
$$= x^2 + y^2 + 2 - z$$
$$\frac{\partial}{\partial x} = 2x \quad \frac{\partial}{\partial y} = 2y \quad \frac{\partial}{\partial z} = -1$$
$$2xi + 2yj - k$$
$$2(1)i + 2(1)j - k$$
$$(xyz) (2, 2, -1) = (1, 1, 4) (2, 2, -1)$$
$$2x + 2y - z = 2 + 2 - 4$$

$$2x + 2y - z = 0$$