"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.

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

w/ respect to x:

$$\frac{df}{dx} = \left(\frac{1}{x^2+y^3}\right)\cdot(2x+0)$$

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

w/ respect to y:

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

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

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

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

$$\frac{dz}{dx} = 2x \rightarrow \frac{dz}{dx}(1,1) = 2$$

$$\frac{dz}{dy} = 2y \rightarrow \frac{dz}{dy}(1,1) = 2$$

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

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

$$\boxed{z = 2x + 2y}$$