NAME: (print!) _Orion Kress Sanfilippo_   Section: _22_

1. Compute the partial derivatives with respect to x and y.

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

$$\frac{\partial z}{\partial x} = \frac{1}{x^2+y^3}(2x) \qquad \frac{\partial z}{\partial y} = \frac{3y^2}{(x^2+y^3)}$$

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

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

w.r.t $\boxed{x}$ $z' = 2x$ @ $(1,1,4)$ $z' = 2$

w.r.t $\boxed{y}$ $z' = 2y$ @ $(1,1,4)$ $z' = 2$

$$\boxed{z = 2(x-1) + 2(y-1) + 4}$$