

1.

$$\frac{\partial z}{\partial x} = y^2 \quad \frac{\partial z}{\partial y} = 2xy$$

$$f|_0 = 1 \quad f|_0 = 2$$

$$z-1 = 1(x-1) + \frac{1}{2}(y-1)^2$$

$$2. \quad f(x,y) \approx 1 + \frac{1}{2}(y-1)^2 + 1x(y)$$