

1.

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

$$f_x|_0 = 1 \quad f_y|_0 = 2$$

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

$$2. \quad f_{(x,y)} \approx 1 + (\text{something})x + 1 \times y$$