

Quiz For Lecture 7

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

$$f_x = \frac{1}{x^2 + y^3} (2x)$$

$$\frac{\partial}{\partial z} \ln(x^2 + y^3) = \left( \frac{2x}{x^2 + y^3} \right)$$

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

$$w = x^2 + y^2 - z + 2$$

$$\frac{\partial w}{\partial x} = 2x \quad \frac{\partial w}{\partial y} = 2y \quad \frac{\partial w}{\partial z} = -1$$

$$(2)(1)(x-1) + (2)(1)(y-1) + (1)(4)(z-4) = 0$$

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

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