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$$1) f(x) = \frac{1}{x^2 + y^3} \cdot 2x \quad f_y = \frac{1}{x^2 + y^3} \cdot 3y^2$$

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

$$f_y = \frac{3y^2}{x^2 + y^3}$$

2)

$$f_x = 2x + 0 + 0$$

$$f_y = 0 + 2y + 0$$

$$z' = 2$$

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

$$z = 2x + 2y$$