

9.7.11

$$f = xy$$

$$P = [-4, 5]$$

find  $\nabla f(x, y, z)$

$$\nabla f = \begin{bmatrix} \partial_x xy \\ \partial_y xy \\ \partial_z xy \end{bmatrix} = \begin{bmatrix} y \\ x \\ 0 \end{bmatrix}$$

$$\nabla f(P) = \begin{bmatrix} 5 \\ -4 \\ 0 \end{bmatrix}$$