

Partial derivatives

1. Let $f(x, y) = e^{(x^2+y^2)} + x^2 + y^2 + xy + 2y + 3$.

a) Compute $\frac{\partial f}{\partial x}$ and $\frac{\partial f}{\partial y}$.

b) Show the second partials can be computed in any order. That is,

$$\frac{\partial^2 f}{\partial x \partial y} = \frac{\partial^2 f}{\partial y \partial x}.$$

c) Find $\frac{\partial f}{\partial x}(1, 3)$.

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