

QUESTION

Given $f(x, y) = x^2y^2 + e^{xy}$ evaluate $\frac{\partial^2 f}{\partial y \partial x}$.

ANSWER

$$f = x^2y^2 + e^{xy}, \quad \frac{\partial f}{\partial x} = 2xy^2 + ye^{xy}$$

$$\frac{\partial^2 f}{\partial y \partial x} = \frac{\partial}{\partial y}(2xy^2 + ye^{xy}) = 4xy + e^{xy} + xye^{xy}$$