Question #72150, Math / Calculus

Obtain first and second derivative of f(x,y)=x^2sin y+ y^2cos x

$$f(x,y) = x^2 \sin y + y^2 \cos x\,;$$

First derivative

$$f'_x = \frac{\partial f}{\partial x} = 2x \sin y - y^2 \sin x\,;$$

$$f'_y = \frac{\partial f}{\partial y} = x^2 \cos y + 2y \cos x\,;$$

Second derivative

$$f''_{xx} = \frac{\partial (f'_x)}{\partial x} = 2 \sin y - y^2 \cos x\,;$$

$$f''_{xy} = \frac{\partial (f'_x)}{\partial y} = f''_{yx} = \frac{\partial (f'_y)}{\partial x} = 2x \cos y - 2y \sin x\,;$$

$$f''_{yy} = \frac{\partial (f'_y)}{\partial y} = -x^2 \sin y + 2 \cos x.$$