

Answer on Question#39000 - Math - Calculus

Question: Determine all the first and second order partial derivatives for the function:

$$u(x, y) = x^2 \sin(y) + y^2 \cos(x).$$

Answer.

$$u_x(x, y) = 2x \sin(y) - y^2 \sin(x),$$

$$u_y(x, y) = x^2 \cos(y) + 2y \cos(x),$$

$$u_{xx}(x, y) = 2 \sin(y) - y^2 \cos(x),$$

$$u_{xy}(x, y) = 2x \cos(y) - 2y \sin(x),$$

$$u_{yy}(x, y) = -x^2 \sin(y) + 2 \cos(x).$$