

Calculus β

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Opskriv det generelle differentiale for de følgende funktioner og angiv differentialet i punktet (1,2):

0.1 a

$$f(x, y) = xy^2.$$

First off the partial derivatives are determined

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

$$\frac{\partial f}{\partial y} = 2xy.$$

The general differential is therefore

$$df = (y^2) dx + (2xy) dy.$$

the differential in (1,2) is therefore

$$df = 2^2 dx + 2 \cdot 1 \cdot 2 dy = 4dx + 4dy.$$

0.2 b

$$f(x, y) = x^2 \sin \pi y^2.$$

sympy x**2-2 sympy