

O polinômio

$$P_2(x, y) = f(x_0, y_0) + \frac{\partial f}{\partial x}(x_0, y_0)(x - x_0) + \frac{\partial f}{\partial y}(x_0, y_0)(y - y_0) + \frac{1}{2} \left[\frac{\partial^2 f}{\partial x^2}(x_0, y_0)(x - x_0)^2 + 2 \frac{\partial^2 f}{\partial x \partial y}(x_0, y_0)(x - x_0)(y - y_0) + \frac{\partial^2 f}{\partial y^2}(x_0, y_0)(y - y_0)^2 \right]$$

denomina-se *polinômio de Taylor de ordem 2 de f em volta de (x_0, y_0)* .

Se $f(x, y) = e^{x+y}$ e $(x_0, y_0) = (0, 0)$, no teorema acima, resulta: