

Anál. 14 - 15.5 / 1a

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• $f(x, y) = x \cdot \sin(y) \rightarrow f(0, 0) = 0$

• Derivadas parciais de $f(x, y) = x \cdot \sin(y)$:

• $\frac{\partial f}{\partial y} = \sin(y) = 0$

• $\frac{\partial^2 f}{\partial x^2} = 0$

• $\frac{\partial f}{\partial y} = x \cdot \cos(y) = 0$

• $\frac{\partial^2 f}{\partial y^2} = -x \cdot \sin(y) = 0$

• $\frac{\partial^2 f}{\partial x \partial y} = \cos(y) = 1$

• Equação de Taylor

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

• Resultado

$$f(x, y) = x \cdot \sin(y) \rightarrow P_2(x, y) = x \cdot y$$