

(4)

$$\arctan \frac{1,02}{0,95} \stackrel{?}{=} ?$$

pom. tot. dif.

$$R = \arctan \frac{x}{y}$$

$$x_0 = 1$$

$$y_0 = 1$$

$$A[1; 1]$$

$$dx = x - x_0 = 0,02$$

$$dy = y - y_0 = -0,05$$

$$df(A) = \frac{\partial f}{\partial x}(x_0, y_0) \cdot dx + \frac{\partial f}{\partial y}(x_0, y_0) \cdot dy$$

$$\frac{\partial f}{\partial x} = \frac{1}{1 + \frac{x^2}{y^2}} \cdot \frac{1}{y}$$

$$\frac{\partial f}{\partial x}(A) = \frac{1}{1+1} \cdot \frac{1}{1} = \underline{\underline{\frac{1}{2}}}$$

$$\frac{\partial f}{\partial y} = \frac{1}{1 + \frac{x^2}{y^2}} \cdot x \cdot (-1) \cdot y^{-2}$$

$$\frac{\partial f}{\partial y}(A) = \frac{1}{1+1} \cdot 1 \cdot (-1) \cdot 1 = \underline{\underline{-\frac{1}{2}}}$$

$$f(x, y) \approx f(x_0, y_0) + df(x_0, y_0)$$

$$f(x_0, y_0) = \arctan \frac{1}{1} = \arctan 1 = \underline{\underline{\frac{\pi}{4}}}$$

$$\arctan \frac{1,02}{0,95} = f(x, y) \approx \frac{\pi}{4} + \frac{1}{2} \cdot 0,02 - \frac{1}{2} \cdot (-0,05) =$$

$$= \frac{\pi}{4} + 0,01 + 0,025 = \frac{\pi}{4} + 0,035 =$$

$$\stackrel{?}{=} \frac{3,14}{4} + 0,035 = 0,785 + 0,035 =$$

$$= \underline{\underline{0,820}}$$