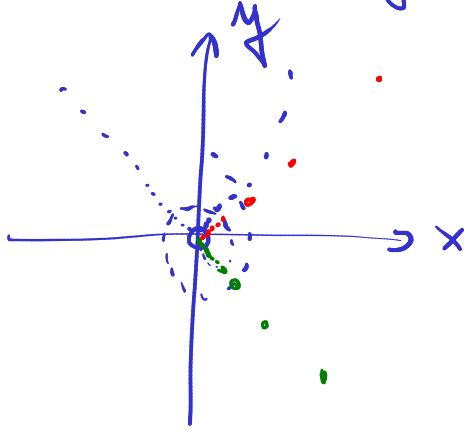


(450)

$$f(x, y) = \frac{xy}{x^2 + y^2}, \quad (x_0, y_0) := (0, 0)$$



$$\underline{(x_n, y_n) := \left(\frac{1}{n}, \frac{1}{n}\right)}$$

$$\begin{aligned} \lim_{n \rightarrow \infty} f(x_n, y_n) \\ = \lim_{n \rightarrow \infty} \frac{\frac{1}{n} \cdot \frac{1}{n}}{\left(\frac{1}{n}\right)^2 + \left(\frac{1}{n}\right)^2} \end{aligned}$$

$$= \lim_{n \rightarrow \infty} \frac{1}{2} = \frac{1}{2}$$

$$\underline{(\tilde{x}_n, \tilde{y}_n) := \left(\frac{1}{n}, -\frac{1}{n}\right)}$$

$$\lim_{n \rightarrow \infty} f(\tilde{x}_n, \tilde{y}_n) = \lim_{n \rightarrow \infty} \frac{\frac{1}{n} \cdot \left(-\frac{1}{n}\right)}{\left(\frac{1}{n}\right)^2 + \left(-\frac{1}{n}\right)^2} = \lim_{n \rightarrow \infty} \frac{-1}{2} = -\frac{1}{2}$$

$\neq$