

$$f: x \in A \subseteq \mathbb{R} \longrightarrow y = f(x) \in \mathbb{R} \quad ; \quad x_0 \in A \cap D(A) \quad 5.2$$

$$\Delta f : x \in A \longrightarrow f(x) - f(x_0) \quad \text{INCREMENTO DI } f$$

$$\frac{\Delta f}{\Delta} : x \in A - \{x_0\} \longrightarrow \frac{\Delta f(x)}{\Delta x} = \frac{f(x) - f(x_0)}{x - x_0}$$

RAPPORTO INCREMENTALE

$$\lim_{x \rightarrow x_0} \frac{f(x) - f(x_0)}{x - x_0} = f'(x_0) = \begin{cases} \in \mathbb{R} \\ = +\infty \\ = -\infty \end{cases} \quad \text{DERIVATA IN } x_0$$

$$f \text{ DERIVABILE IN } x_0 \stackrel{\text{DEF}}{\iff} f'(x_0) \in \mathbb{R}$$

$$f'_-(x_0) \quad ; \quad f'_+(x_0)$$

$$\underline{f'_-(x_0)} = \lim_{x \rightarrow x_0^-} \frac{f(x) - f(x_0)}{x - x_0} \quad \text{MINIMA DERIVATA SINISTRA}$$

$$\overline{f'_-(x_0)} \quad ; \quad \underline{f'_+(x_0)} \quad ; \quad \overline{f'_+(x_0)}$$