$$\lim_{h o 0}rac{f(x_0+h)-f(x_0)}{h}=f'(x_0) \ f(x_0+h)-f(x_0)=f'(x_0)h+o(h)=[Df_{x_0}](h)+o(h) \ orall f(x_0+h)-f(x_0)=f(x_0)+f'(x_0)+rac{f''(x_0)}{2!}h^2+rac{f'''(x_0)}{3!}h^3+\dots \ orall f(\overline{x_0}+ar{h})-f(\overline{x_0})=\sum_{j=1}^mrac{\partial f}{\partial x_m}ig|_{x=\overline{x_0}}h_i=[Df_{x_0}](ar{h})+o(||ar{h}||) \ orall f(\overline{x_0}+ar{h})=f(\overline{x_0})+(
abla f)_{x_o}\cdotar{h}+rac{1}{2}ar{h}^THf(x_0)ar{h}+\dots \ orall f(\overline{x_0}+ar{h})-f(\overline{x_0})=(
abla x_0f)\cdot+o(||ar{h}||)$$