## 1 Differentiable Functions

Definition 1.1 A function $f: \mathbb{R} \rightarrow \mathbb{R}$ is called differentiable at $x \in \mathbb{R}$, iff for all $\epsilon>0$ there is a $\delta>0$, such that $\frac{|f(x)-f(y)|}{|x-y|}<\epsilon$ for all $|x-y|<\delta$.

