## 1 Continuous Functions

Definition 1.1 A function $f: \mathbb{R} \rightarrow \mathbb{R}$ is called continuous at $x \in \mathbb{R}$, iff for all $\epsilon>0$ there is a $\delta>0$, such that $|f(x)-f(y)|<\epsilon$ for all $|x-y|<\delta$. It is called continuous on a set $S \subseteq \mathbb{R}$, iff is is continous at all $x \in S$, the set of all such functions is denoted with $\mathcal{C}^{0}(S, T)$, if $f(S) \subseteq T$.

