

Definition 13.27. [162] Let $A \subset \mathbb{R}$. A function $f : A \rightarrow \mathbb{R}$ is said **Lipschitz continuous** if there exists $L > 0$ such that $\forall x, y \in A$,

$$|f(x) - f(y)| \leq L|x - y| .$$

A function $f : A \rightarrow \mathbb{R}$ is said **Hölder continuous** if $L > 0$ and $\alpha \in (0, 1]$ exist such that $\forall x, y \in A$,

$$|f(x) - f(y)| \leq L|x - y|^\alpha .$$

The constant α is called the order.