A function f is called a *bounded function* if and only if there exists a number A such that

$$|f(x)| \leq A \quad \text{for all } x \text{ in the domain of } f.$$

In other words:

$$\exists A \in R \text{ such that } |f(x)| \leq A \text{ for all } x \text{ in the domain of } f.$$