Real Functions

1 Why

We define functions mapping real numbers to real numbers.

2 Definition

A *real function* is a real-valued function on a subset of real numbers. The domain is often an interval.

2.1 Notation

$f : \mathbf{R} \to \mathbf{R}$. f is a real function. To speak of functions defined on intervals, let $a, b \in \mathbf{R}$. $g : [a, b] \to \mathbf{R}$. is a real function defined on a closed interval. $h : (a, b) \to \mathbf{R}$ is a real function defined on an open interval.

We regularly declare the interval and the function in one pass: Let $f : [a, b] \to \mathbf{R}$, read aloud as "$f$ from closed a b to $\mathbf{R}$." Or, let $f : (a, b) \to \mathbf{R}$ read aloud as "f from open a b to $\mathbf{R}$".