# NOTATION

$\mathbb{N}$, $\mathbb{Z}$, $\mathbb{Q}$, $\mathbb{R}$ and $\mathbb{C}$ have their usual meaning, denoting the sets of natural numbers, integers, rational numbers, real numbers and complex numbers, respectively. The symbol $\mathbb{R}^*$ denotes the set of extended real numbers, that is $\mathbb{R}$ together with $\infty$ and $-\infty$, while $\mathbb{R}^+$ and $\mathbb{R}^*_+$ denote the non-negative members of $\mathbb{R}$ and $\mathbb{R}^*$, respectively.

":=" means "is defined by". For instance, $p := x^2$ defines p as the square of x.

Let S and T be non-empty sets, and let $f : S \to T$ be a function. For any subset B of T the inverse image of B under f is written as $\overleftarrow{f}(B) := \{s \in S \mid f(s) \in B\}$. If f is an injection (that is, if f is one-to-one), then the inverse function of f, which is defined on the range of f, is also denoted by $\overleftarrow{f}$.

Let S and T be sets. If for each $s \in S$ there is in some way given an $f(s) \in T$, then this defines a function $f : S \to T$. We write $f := \curlyvee_{s \in S} f(s)$, which is read as: f is defined to be that function that takes at S the value f(s). (Note that the range space T need not be mentioned explicitly.) For instance, we may write $s := \curlyvee_{x \in \mathbb{R}^2} x^2$, which defines s on $\mathbb{R}$ as the squaring function, or $\cos := \curlyvee_{x \in \mathbb{R}} \sum_{n=0}^{\infty} (-1)^n x^{2n}/(2n)!$, which defines the cosine function on $\mathbb{R}$.

Composition of functions is denoted by means of $\circ$. Thus $f \circ g := \curlyvee_{s \in S} f(g(s))$, if S, is the domain of g and g maps S into the domain of f.