



**Why**

We represent rectangles by functions.

**Definition**

A *rectangular function* corresponds to a characteristic function of an interval. It represents a rectangle whose width is the interval and whose height is one.

**Notation**

Let  $A$  be a non-empty set and  $B \subset A$ . Recall that we denote the characteristic function of  $B$  by  $\chi_B$ .

Now suppose that  $A \subset \mathbf{R}$ . If we embed  $\{0, 1\} = 2 \in \mathbf{N}$  in  $\mathbf{R}$  by associating 0 to  $0_{\mathbf{R}}$  and 1 to  $1_{\mathbf{R}}$  then every characteristic function is identified with a function from  $\mathbf{R}$  to  $\mathbf{R}$ .

In particular, notice that if  $B$  is an interval and  $\alpha$  is a real number then  $\alpha\chi_B$  is a rectangle with height  $\alpha$ .



