

In mathematics, a *set* is a collection of objects. We can write a set by using braces. Some sets have a special symbol which is used to represent them.

Here are some examples:

- $\{\text{apple, orange, pear}\}$  is a set of fruit
- $\{0, 1, 2\}$  is a set containing three particular integers
- $\mathbb{Z}$  is the set of all integers
- $\mathbb{Q}$  is the set of all [rational numbers](#)
- $\mathbb{R}$  is the set of all real numbers
- $\{\}$ , sometimes written  $\emptyset$ , is the *empty set*, the set with no elements

The symbolic notation for “ $x$  is in the set of rational numbers” is  $x \in \mathbb{Q}$ , and similarly for other sets.

Sometimes, we want to say “the set of all numbers which ...”; mathematicians use an extension of the brace notation to write this. For example

$$\{x : x \in \mathbb{R} \text{ and } x^2 < 4\}$$

(read as “the set of  $x$  such that  $x$  is real and  $x^2 < 4$ ”) means the set of all real numbers whose square is less than 4. If it is clear that we are referring to real numbers, this can be abbreviated to  $\{x : x^2 < 4\}$ .

A useful related notation is [interval notation](#).