

# Range of a function

The *range* of a function is the set of its possible output values.

For example, for the function  $f(x) = x^2$  on the domain of all real numbers ( $x \in \mathbb{R}$ ), the range is the non-negative real numbers, which can be written as  $f(x) \geq 0$  (or  $[0, \infty)$  using [interval notation](#)).

The range of the function  $f(x) = \sin x$ ,  $x \in \mathbb{R}$  is the real numbers between  $-1$  and  $1$ , that is  $-1 \leq f(x) \leq 1$  (or  $[-1, 1]$  using interval notation).

The domain of the function can affect the range so, for example, the range of the function  $g(x) = \sin x$ ,  $x \in \mathbb{R}$ ,  $0 < x < \frac{\pi}{2}$  is the real numbers between  $0$  and  $1$ , that is  $0 < g(x) < 1$  (or  $(0, 1)$  using interval notation).