

Definitions

A *function* f with domain A and range B is a subset of $A \times B$ such that each element of A is paired with one and only one element of B . The notation is $f : A \rightarrow B$.

If (x, y) is in f , then we write $y = f(x)$.

The *image of* $f = im f = \{ y \in B : \exists x \in A \text{ with } y = f(x) \}$. Note: $im f \subset B$.

If $im f = B$, then f is said to be *onto*.

A function f is *one-to-one* (1-1) provided no two ordered pairs of f have the same second element.

If A and B are sets, we say that A is *equivalent* to B (*same size*) if and only if there is a 1-1 function f from A onto B .