Definition

Let $\mathbf{A}$ and $\mathbf{B}$ be sets. A *function* $f : \mathbf{A} \to \mathbf{B}$ is a subset

$$f \subseteq \mathbf{A} \times \mathbf{B},$$

with the property that for all $x \in \mathbf{A}$ there is exactly one pair of the form $\langle x, y \rangle$:

$$\forall x \in \mathbf{A} \quad \exists!\, y \in \mathbf{B} : \ \langle x, y \rangle \in f.$$

We say that $\mathbf{A}$ is the *source* and $\mathbf{B}$ is the *target* of f.