

## Definition

- Let  $A, B$  be sets. A **function from  $A$  to  $B$**  is a rule  $f$  that assigns — to every  $x \in A$  — some  $y \in B$ .
- We write  $f: A \rightarrow B$ .
- This element is denoted  $f(x)$ .
- $A$  is called the **domain** of the function  $f$ .
- $B$  is called the **codomain** of the function  $f$ .
- The set  $\{y \in B : \exists x \in A, f(x) = y\} \subseteq B$  is called the **range** or **image** of  $f$ .
- Functions are also called **maps** or **transformations**.