Identity Functions

1 Why

What is an example of a function?

2 Definition

Consider the relation on a non-empy set which includes ordered pairs of elements from the set if the first element is the second element. In other words, two elements are related if and only if they are the same object.

This relation is functional: Each element corresponds to only one element: itself. We call this functional relation the *identity function* of the set.

2.1 Notation

Let A be a non-empty set. If $f : A \to A$ satisfies $f(a) = a$ for each $a \in A$, then f is the identity function.

We denote the identity function on A by $\mathbf{id}_A$. So $\mathbf{id}_A : A \to A$ satisfies $\mathbf{id}_A(a) = a$ for each $a \in A$.