Why

We introduce language for the case in which an operation does not depend on the order in which it operates.

Definition

An operation *commutes* if the result of two elements is the same regardless of their order.

Notation

Let A be a non-empty set and let $+ : A \times A \to A$ be an operation. If $+$ commutes, then

$$a + b = b + a$$

for all $a, b \in A$.

Commutative Operations

Operations

Functions

Relations   Pair Intersections

Set Products

Set Powers

Unordered Triples   Ordered Pairs

Set Symmetric Differences   Pair Unions

Set Complements   Set Unions

Set Differences   Empty Set   Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities   Sets

Names

Letters   Objects