Why

We want to consider the elements of two sets together at once, and other sets created from two sets.

Definitions

We have already mentioned that set unions is an operation when considered on the powerset of some given set (see Operations). It is natural to expect the same for intersections (see Pair Intersections) and symmetric differences (see Symmetric Differences).

We call the operation of *forming unions* the function $(A, B) \mapsto A \cup B$. We call the operation of *forming intersections* the function $(A, B) \mapsto A \cap B$. We call the operation of *forming symmetric differences* the function $(A, B) \mapsto A + B$.

We have seen that forming unions commutes and is associative and likewise with forming intersections. As a result of the commutativity of unions and intersections, forming symmetric differences also commutes.

We call these three operations the *set operations.*

Set Operations

Operations

Functions

Relations

Cartesian Products

Set Powers

Pair Intersections

Ordered Pairs

Unordered Triples

Pair Unions

Set Symmetric Differences

Set Unions

Set Complements

Unordered Pairs

Empty Set

Set Differences

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects