### Why

We want to count the number of elements in a set.[1]

### Defining Result

**Proposition 1.** *A set can be equivalent to at most one natural number.*

The *number* of a finite set is the unique natural number equivalent to it. We also call this the *size* of the set.

### Notation

We denote the number of a set by $|A|$.

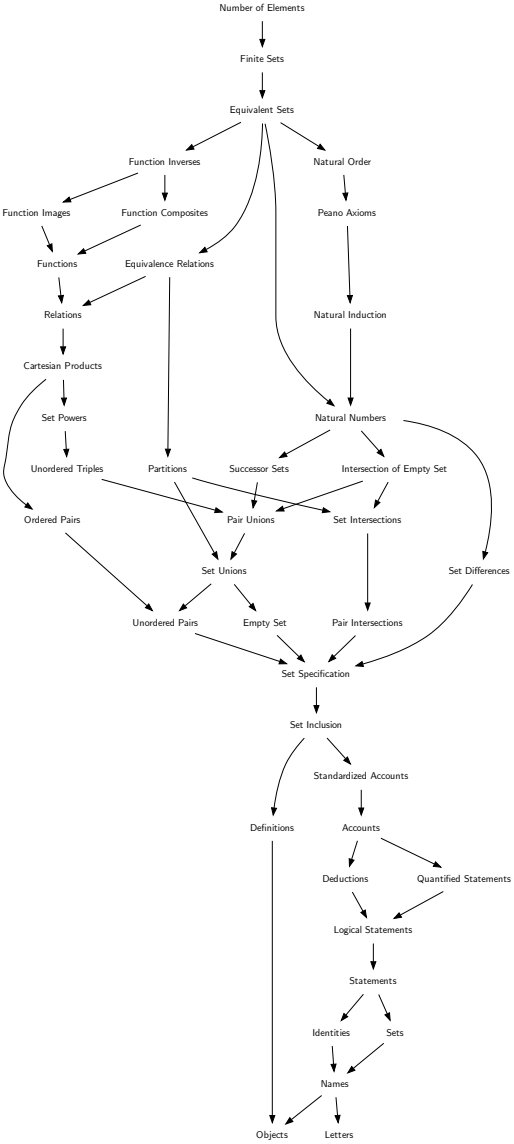
### Restriction to a finite set

If we restrict the function $E \mapsto |E|$ to the domain $X^*$ of some set $X$ then $|:| X^* \to \omega$ is a function.

### Properties

**Proposition 2.** $A \subset B \longrightarrow |a| \leq |B|$

[1] In future editions, this sheet will likely be called "Set numbers".


Number of Elements
Finite Sets
Equivalent Sets
Function Inverses
Natural Order
Function Images
Function Composites
Peano Axioms
Functions
Equivalence Relations
Relations
Natural Induction
Cartesian Products
Set Powers
Natural Numbers
Unordered Triples
Partitions
Successor Sets
Intersection of Empty Set
Ordered Pairs
Pair Unions
Set Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Pair Intersections
Set Specification
Set Inclusion
Standardized Accounts
Definitions
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Objects
Letters