Why

[1]

Definition

An undirected graph is a *tree* if it is connected and acyclic. An undirected graph is a *forest* if it is acyclic. Each connected component of a forest is a tree, motivating the definition.

Properties

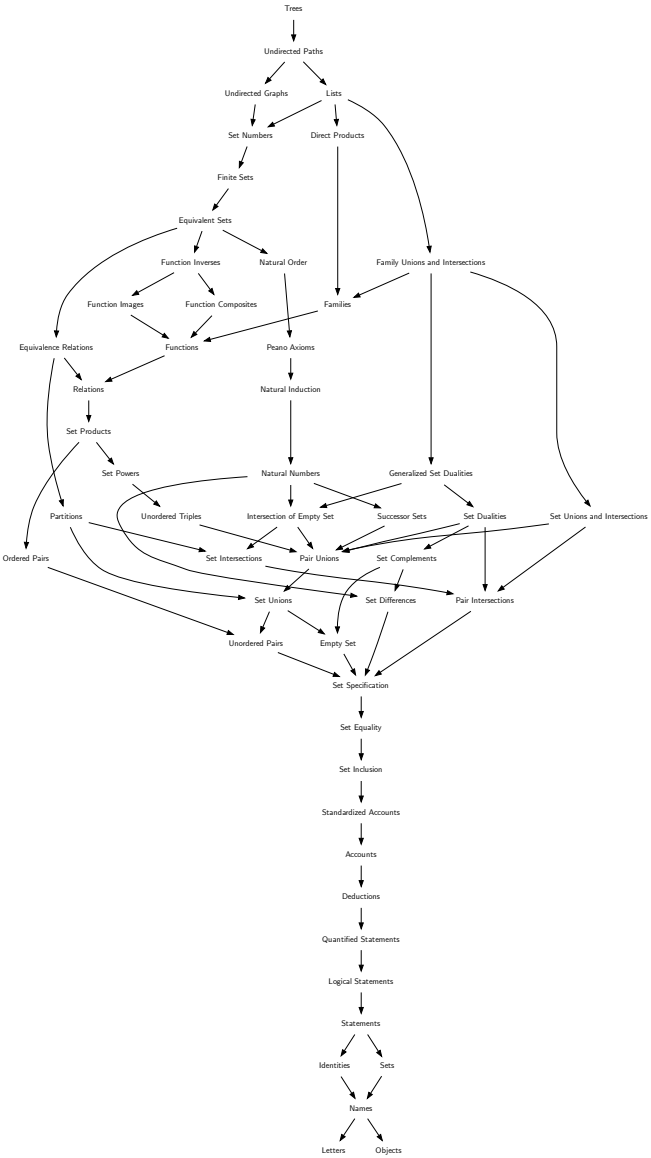
Proposition 1. *There is a unique path between any two vertices of a tree.*

Proof. Such a path exists because the tree is connected. Such a path is unique because the existence of two separate paths would create a cycle. □

Distance

The *distance* between two vertices v and w in a tree is the length of the unique path connnecting v and w. Recall that the length of a path is the number of edges, or one fewer than the number of vertices. If v and w are adjacent in the tree, then there distance is 1.

[1] Future editions will include.


Trees
Undirected Paths
Undirected Graphs
Lists
Set Numbers
Direct Products
Finite Sets
Equivalent Sets
Function Inverses
Natural Order
Family Unions and Intersections
Function Images
Function Composites
Families
Equivalence Relations
Functions
Peano Axioms
Relations
Natural Induction
Set Products
Set Powers
Natural Numbers
Generalized Set Dualities
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Set Dualities
Set Unions and Intersections
Ordered Pairs
Set Intersections
Pair Unions
Set Complements
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects