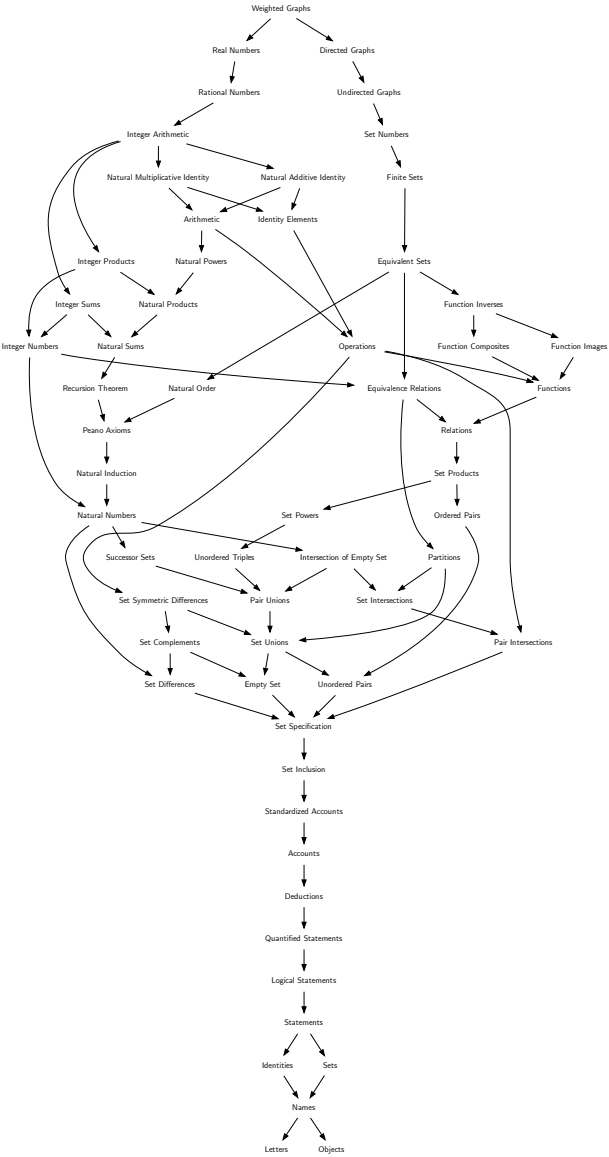
Why

Often the edges of some graph are associated with a particular cost, perhaps the cost of traversing that edge.

Definition

Let (V, E) be an undirected graph. An *unordered weight function* $w : E \to \mathbf{R}$ is a function mapping undirected edges to real numbers. A *weighted undirected graph* is an ordered pair $((V, E), w)$ where (V, E) is an undirected graph and w is an unordered wieght function.

Let (V, F) be a directed graph. An *ordered weight function* or just *weight function* $\omega : F \to \mathbf{R}$ is a function mapping directed edges to real numbers. A *weighted directed graph* is an ordered pair $((V, F), \omega)$ where (V, E) is an undirected graph and ω is an ordered wieght function.


Weighted Graphs
Real Numbers
Directed Graphs
Rational Numbers
Undirected Graphs
Integer Arithmetic
Set Numbers
Natural Multiplicative Identity
Natural Additive Identity
Finite Sets
Arithmetic
Identity Elements
Integer Products
Natural Powers
Equivalent Sets
Integer Sums
Natural Products
Function Inverses
Integer Numbers
Natural Sums
Operations
Function Composites
Function Images
Recursion Theorem
Natural Order
Equivalence Relations
Functions
Peano Axioms
Relations
Natural Induction
Set Products
Natural Numbers
Set Powers
Ordered Pairs
Successor Sets
Unordered Triples
Intersection of Empty Set
Partitions
Set Symmetric Differences
Pair Unions
Set Intersections
Set Complements
Set Unions
Pair Intersections
Set Differences
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects