Why

Definition

The *convex hull* of a subset of n-dimensional space is the intersection of all convex sets containing the set.

Notation

We denote the convex hull of $S \subset \mathbf{R}^n$ by $\mathbf{conv}\, S$.

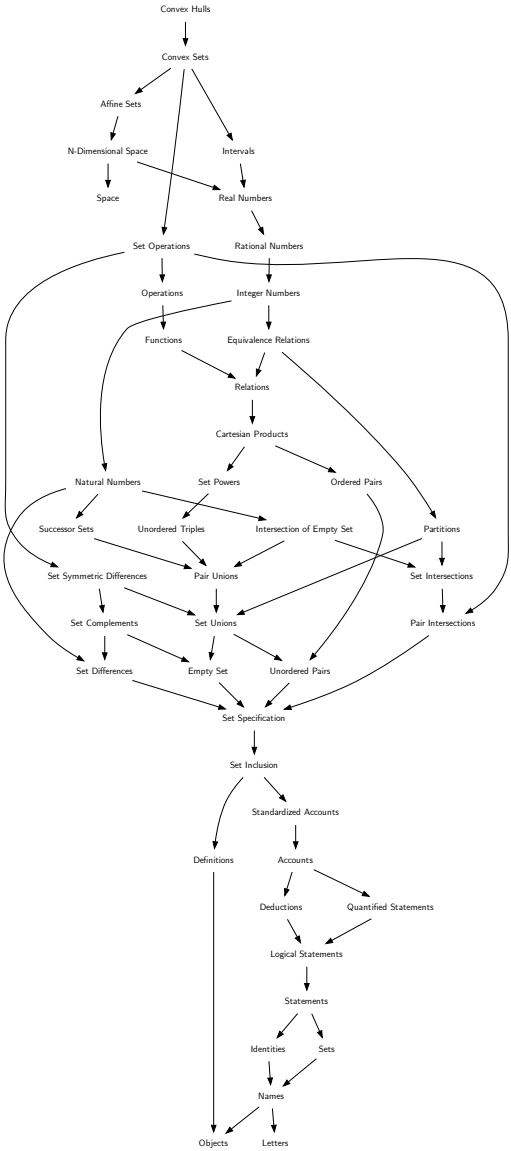
Characterization

Proposition **1.** *Let $S \subset \mathbf{R}^n$. $\mathbf{conv}\, S$ is the set of all convex combinations of elements of S.*

Proposition **2.** *The convex hull of $\{b_1, \ldots, b_m\} \subset \mathbf{R}^n$ consists of all vectors*

$$\lambda_1 b_1 + \lambda_2 b_2 + \cdots + \lambda_m b_m.$$

where $\lambda_i \geq 0$ and $\sum_i \lambda_i = 1$.


Convex Hulls
Convex Sets
Affine Sets
N-Dimensional Space
Intervals
Space
Real Numbers
Set Operations
Rational Numbers
Operations
Integer Numbers
Functions
Equivalence Relations
Relations
Cartesian 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
Definitions
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Objects
Letters