Why

[1]

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 $\operatorname{conv} S$.

Characterization

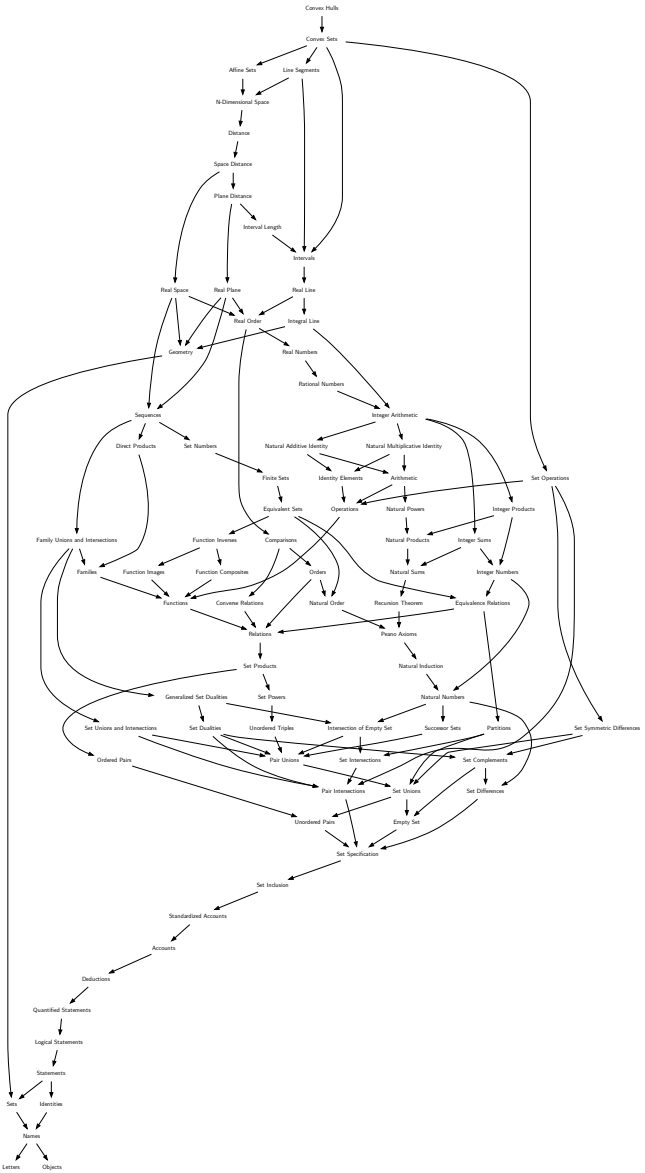
Prop. 1. *Let $S \subset \mathbf{R}^n$. $\operatorname{conv} S$ is the set of all convex combinations of elements of S.*

Prop. 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 $\sum_i \lambda_i = 1$.

[1] Future editions will include.


Convex Hulls
Convex Sets
Affine Sets
Line Segments
N-Dimensional Space
Distance
Space Distance
Plane Distance
Interval Length
Intervals
Real Space
Real Plane
Real Line
Real Order
Integral Line
Geometry
Real Numbers
Rational Numbers
Integer Arithmetic
Sequences
Direct Products
Set Numbers
Natural Additive Identity
Natural Multiplicative Identity
Finite Sets
Identity Elements
Arithmetic
Set Operations
Equivalent Sets
Operations
Natural Powers
Integer Products
Family Unions and Intersections
Function Inverses
Comparisons
Natural Products
Integer Sums
Families
Function Images
Function Composites
Orders
Natural Sums
Integer Numbers
Functions
Convene Relations
Natural Order
Recursion Theorem
Equivalence Relations
Relations
Peano Axioms
Set Products
Natural Induction
Generalized Set Dualities
Set Powers
Natural Numbers
Set Unions and Intersections
Set Dualities
Unordered Triples
Intersection of Empty Set
Successor Sets
Partitions
Set Symmetric Differences
Ordered Pairs
Pair Unions
Set Intersections
Set Complements
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects