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
Intervals
N-Dimensional Space
Set Operations
Space
Real Numbers
Algebras
Rational Numbers
Operations
Integer Numbers
Functions
Zero
Relations
Equation Solutions
Ordered Pairs
Natural Numbers
Set Symmetric Differences
Unordered Pairs
Empty Set
Set Intersections
Set Unions
Set Complements
Equations
Set Specification
Set Inclusion
Set Equality
Sentences
Identity
Sets
Objects