Definition

A *polyhedron* is a set $P \subset \mathbf{R}^n$ for which there exists $A \in \mathbf{R}^{m \times n}$ and $b \in \mathbf{R}^m$ satisfying

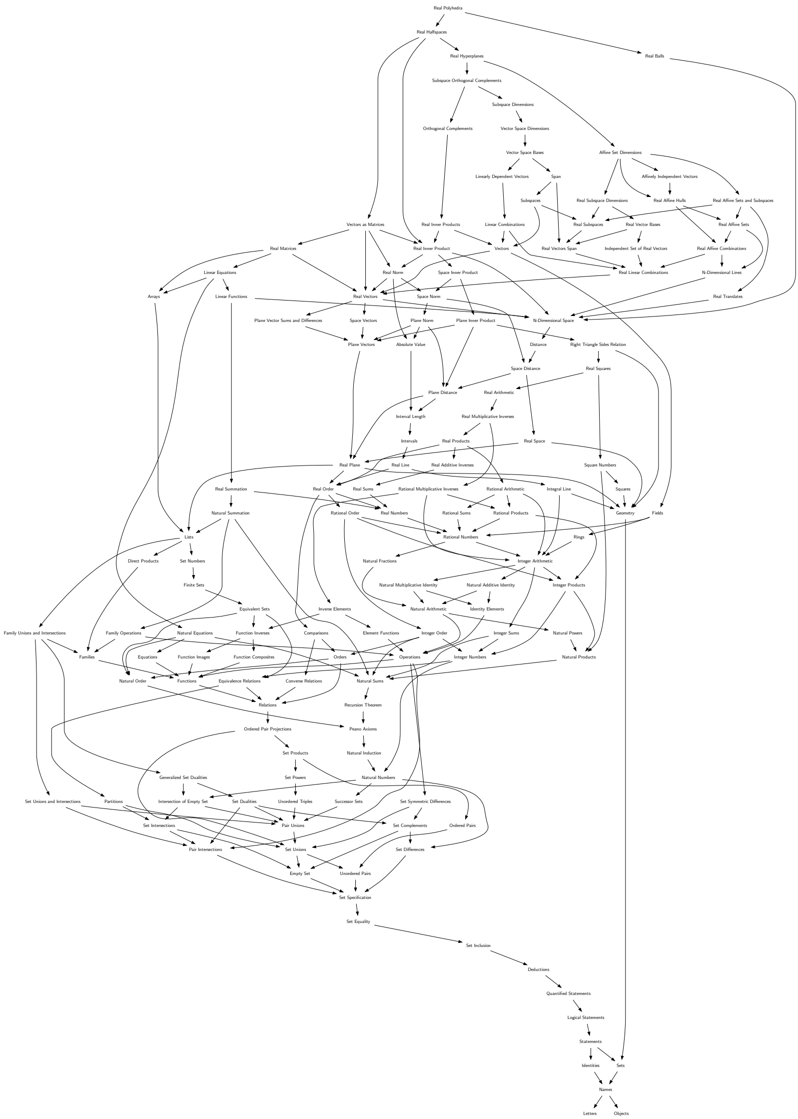
$$P = \{x \in \mathbf{R}^n \mid Ax \leq b\}.$$

In other words, a polyhedron is an intersection of finitely many halfpsaces.

A polyhedron P is *polytope* if it is *bounded.*. In other words, there exists $x_0 \in P$ and $M > 0$ such that

$$P \subset B_M(x_0) = \{x \mid \|x - x_0\| < M\}$$

Here $B_M(x_0)$ denotes the open ball of radius M, as usual.


Real Polyhedra
Real Halfspaces
Real Hyperplanes
Real Balls
Subspace Orthogonal Complements
Subspace Dimensions
Orthogonal Complements
Vector Space Dimensions
Vector Space Bases
Affine Set Dimensions
Linearly Dependent Vectors
Span
Affinely Independent Vectors
Subspaces
Real Subspace Dimensions
Real Affine Hulls
Real Affine Sets and Subspaces
Vectors as Matrices
Real Inner Products
Linear Combinations
Real Subspaces
Real Vector Bases
Real Affine Sets
Real Matrices
Real Inner Product
Vectors
Real Vectors Span
Independent Set of Real Vectors
Real Affine Combinations
Linear Equations
Real Norm
Space Inner Product
Real Linear Combinations
N-Dimensional Lines
Arrays
Linear Functions
Real Vectors
Space Norm
Real Translates
Plane Vector Sums and Differences
Space Vectors
Plane Norm
Plane Inner Product
N-Dimensional Space
Plane Vectors
Absolute Value
Distance
Right Triangle Sides Relation
Space Distance
Real Squares
Plane Distance
Real Arithmetic
Interval Length
Real Multiplicative Inverses
Intervals
Real Products
Real Space
Real Plane
Real Line
Real Additive Inverses
Square Numbers
Real Summation
Real Order
Real Sums
Rational Multiplicative Inverses
Rational Arithmetic
Integral Line
Squares
Natural Summation
Rational Order
Real Numbers
Rational Sums
Rational Products
Geometry
Fields
Lists
Rational Numbers
Rings
Direct Products
Set Numbers
Natural Fractions
Integer Arithmetic
Finite Sets
Natural Multiplicative Identity
Natural Additive Identity
Integer Products
Equivalent Sets
Inverse Elements
Natural Arithmetic
Identity Elements
Family Unions and Intersections
Family Operations
Natural Equations
Function Inverses
Comparisons
Element Functions
Integer Order
Integer Sums
Natural Powers
Families
Equations
Function Images
Function Composites
Orders
Operations
Integer Numbers
Natural Products
Natural Order
Functions
Equivalence Relations
Converse Relations
Natural Sums
Relations
Recursion Theorem
Ordered Pair Projections
Peano Axioms
Set Products
Natural Induction
Generalized Set Dualities
Set Powers
Natural Numbers
Set Unions and Intersections
Partitions
Intersection of Empty Set
Set Dualities
Unordered Triples
Successor Sets
Set Symmetric Differences
Set Intersections
Pair Unions
Set Complements
Ordered Pairs
Pair Intersections
Set Unions
Set Differences
Empty Set
Unordered Pairs
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects