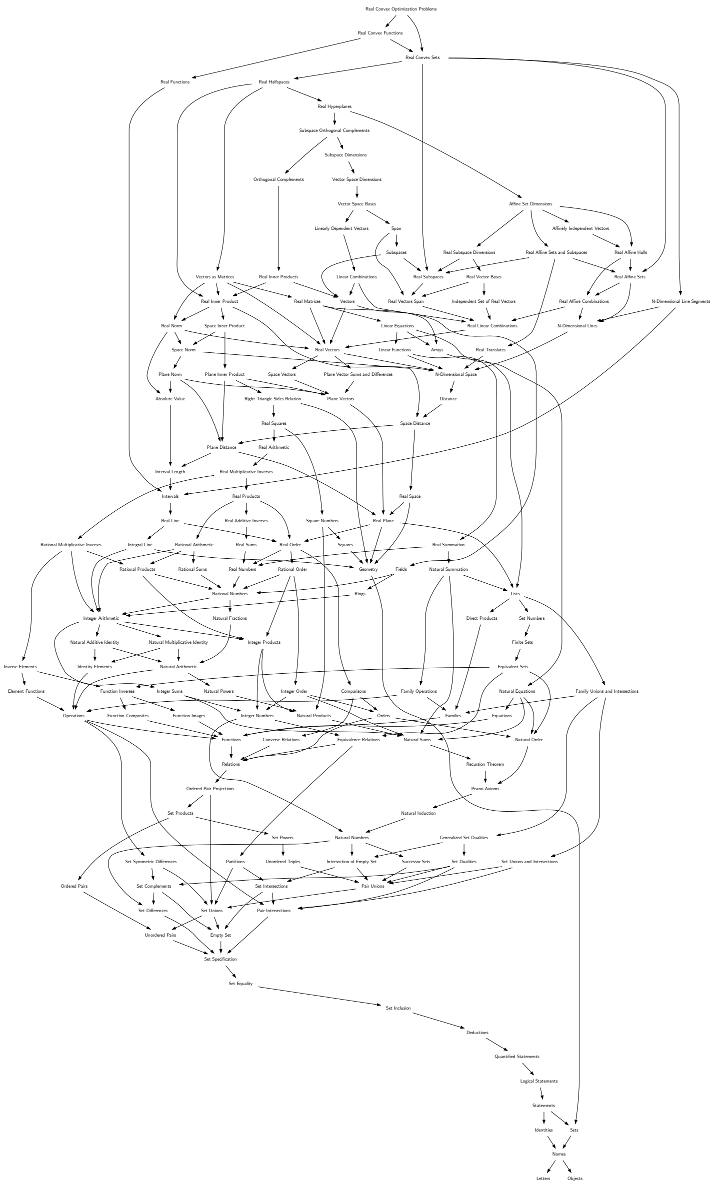
Definition

Suppose $X \subset \mathbf{R}^d$ and $f : \mathbf{R}^d \to \mathbf{R}$. An optimization problem (X, f) is *convex* (a *convex optimization problem*, *convex program*, *ordinary convex program*) if X is a convex set and f is a convex function.

Other terminology


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