## Why

We want a condition for a unique minimizer.

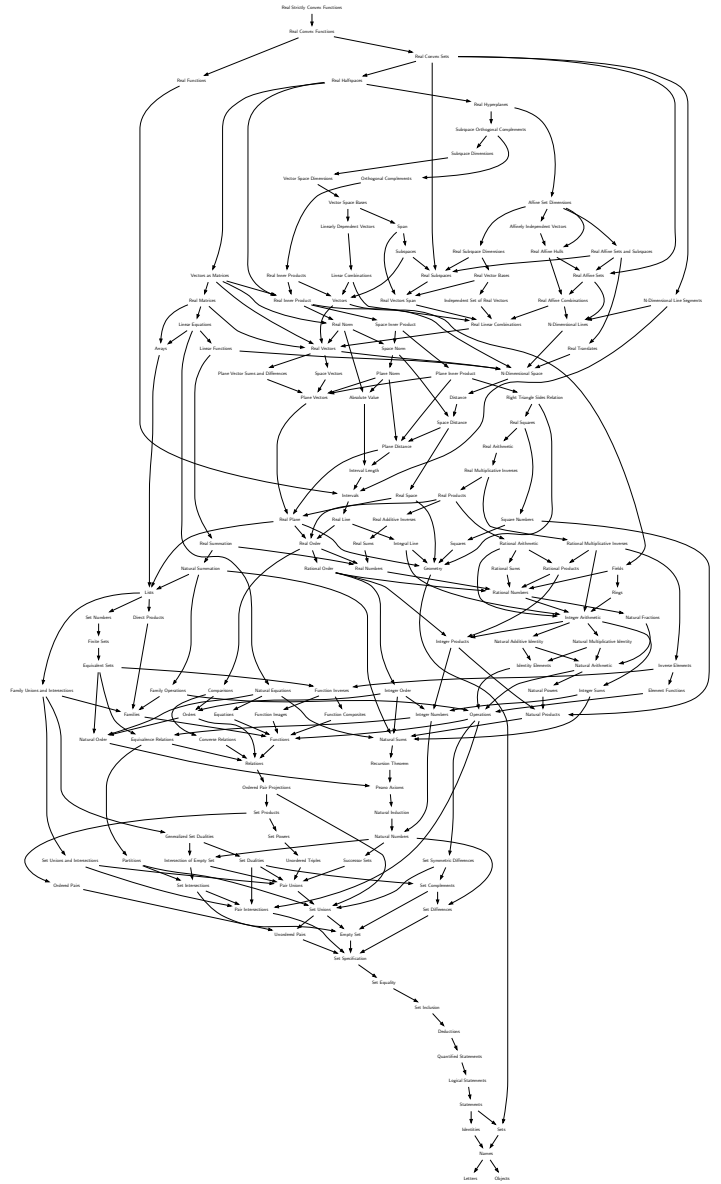
## Definition

Suppose $X \subset \mathbf{R}$ is convex. A function $f : X \to \mathbf{R}$ is *strictly convex* if

$$f(tx + (1-t)y) < tf(x) + (1-t)f(y)$$

for all $t \in [0,1]$ and $x, y \in X$.

$f$ is *strictly concave* if $-f$ is convex.


Real Strictly Convex Functions
Real Convex Functions
Real Convex Sets
Real Functions
Real Halfspaces
Real Hyperplanes
Subspace Orthogonal Complements
Subspace Dimension
Vector Space Dimension
Orthogonal Complements
Vector Space Bases
Affine Set Dimension
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
N-Dimensional Line Segments
Linear Equations
Real Norm
Space Inner Product
Real Linear Combinations
N-Dimensional Lines
Arrays
Linear Functions
Real Vectors
Space Norms
Real Translation
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 Space
Real Products
Real Plots
Real Lists
Real Additive Inverses
Square Numbers
Real Summation
Real Order
Real Sums
Integral Line
Squares
Rational Arithmetic
Rational Multiplicative Inverses
Natural Summation
Rational Order
Real Numbers
Geometry
Rational Sums
Rational Products
Fields
Rational Numbers
Rings
Lists
Integer Arithmetic
Natural Factorial
Set Numbers
Direct Products
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Finite Sets
Identity Elements
Natural Arithmetic
Inverse Elements
Equivalent Sets
Family Unions and Intersections
Family Operations
Comparisons
Natural Equations
Function Inverses
Integer Order
Natural Powers
Integer Sums
Element Functions
Functions
Orders
Relations
Function Images
Function Composition
Integer Products
Intervals
Natural Products
Natural Order
Equivalence Relations
Concrete Relations
Functions
Natural Induction
Relations
Recursion Theorems
Ordered Pair Projections
Peano Axioms
Set Products
Natural Induction
Set Powers
Natural Numbers
Generalized Set Dualities
Set Unions and Intersections
Partitions
Intersection of Empty Set
Set Dualities
Unordered Triples
Successor Sets
Set Symmetric Differences
Ordered Pairs
Set Intersections
Pair Unions
Set Complements
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects