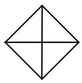


Why

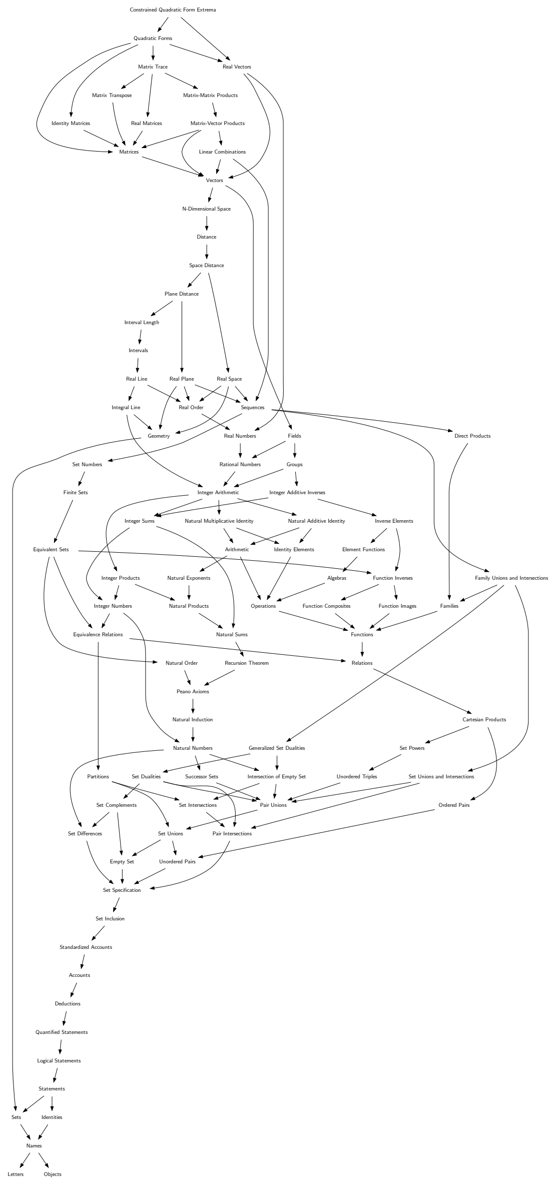
[1]

Result

Proposition 1. *A necessary condition for a maximizer of $x^T Ax$ subject to $x \in \mathbf{R}^n$ and $x^T x = 1$ is that $Ax = \lambda x$ where λ is the Lagrange multiplier...*[2]

[1] Future editions will expand. Discussion will likely include eigenvalues.

[2] Future editions will complete, and include references to lagrange multiplier, gradient, quadratic form, necessary conditions, etc.


Constrained Quadratic Form Extrema
Quadratic Forms
Matrix Trace
Real Vectors
Matrix Transpose
Matrix-Matrix Products
Identity Matrices
Real Matrices
Matrix-Vector Products
Matrices
Linear Combinations
Vectors
N-Dimensional Space
Distance
Space Distance
Plane Distance
Interval Length
Intervals
Real Line
Real Plane
Real Space
Integral Line
Real Order
Sequences
Geometry
Real Numbers
Fields
Direct Products
Set Numbers
Rational Numbers
Groups
Finite Sets
Integer Arithmetic
Integer Additive Inverses
Integer Sums
Natural Multiplicative Identity
Natural Additive Identity
Inverse Elements
Equivalent Sets
Arithmetic
Identity Elements
Element Functions
Integer Products
Natural Exponents
Algebras
Function Inverses
Family Unions and Intersections
Integer Numbers
Natural Products
Operations
Function Composites
Function Images
Families
Equivalence Relations
Natural Sums
Functions
Natural Order
Recursion Theorem
Relations
Peano Axioms
Natural Induction
Cartesian Products
Natural Numbers
Generalized Set Dualities
Set Powers
Partitions
Set Dualities
Successor Sets
Intersection of Empty Set
Unordered Triples
Set Unions and Intersections
Set Complements
Set Intersections
Pair Unions
Ordered Pairs
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects