Why

Well, least squares, for instance.[1]

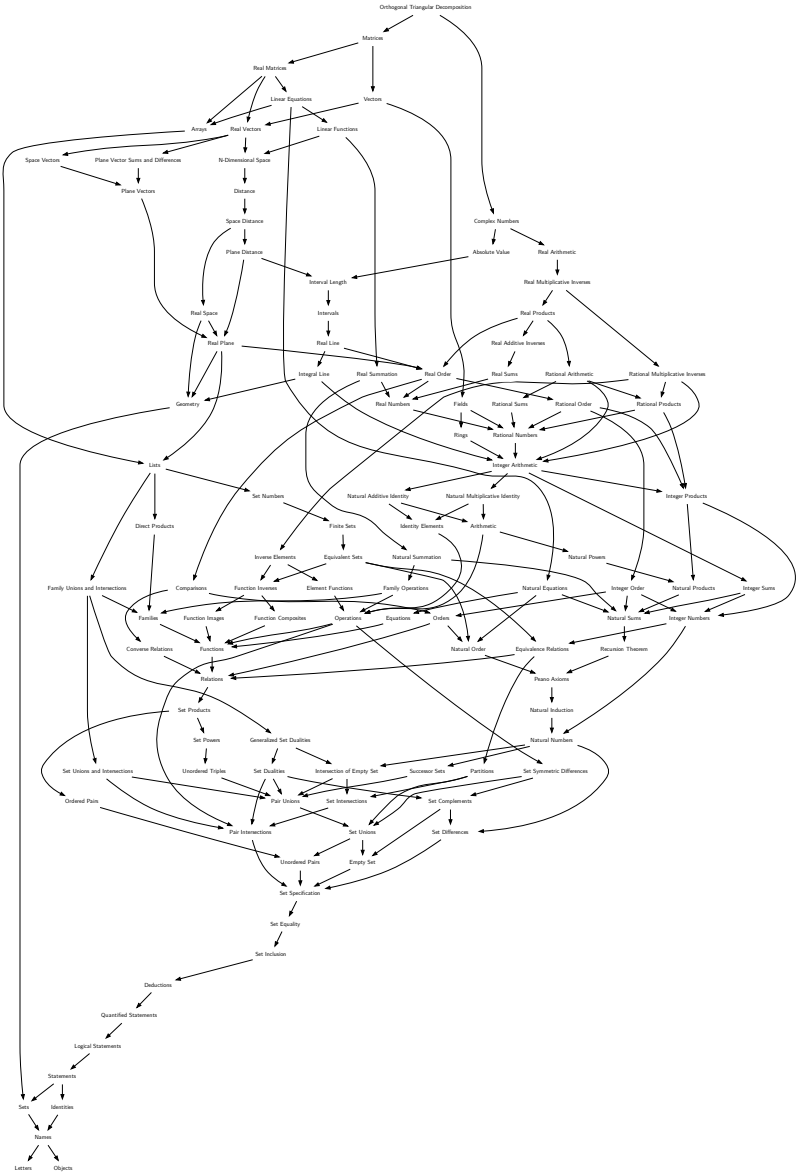
Definition

An *orthogonal triangular decomposition* (or *orthogonal triangular factorization*) of a $A \in \mathbf{C}^{m \times n}$ with $m \geq n$ is an ordered pair of matrices (Q, R) where Q is orthogonal and R is upper triangular and

$$A = QR.$$

This is universally known as a *QR factorization* or *QR decomposition*.

[1] Future editions will expand this description.


Orthogonal Triangular Decomposition
Matrices
Real Matrices
Vectors
Linear Equations
Arrays
Real Vectors
Linear Functions
Space Vectors
Plane Vector Sums and Differences
N-Dimensional Space
Plane Vectors
Distance
Space Distance
Plane Distance
Complex Numbers
Absolute Value
Real Arithmetic
Interval Length
Real Multiplicative Inverses
Real Space
Real Plane
Intervals
Real Line
Real Products
Real Additive Inverses
Integral Line
Real Summation
Real Order
Real Sums
Rational Arithmetic
Rational Multiplicative Inverses
Geometry
Real Numbers
Fields
Rational Sums
Rational Order
Rational Products
Rings
Rational Numbers
Integer Arithmetic
Lists
Set Numbers
Natural Additive Identity
Natural Multiplicative Identity
Integer Products
Direct Products
Finite Sets
Identity Elements
Arithmetic
Inverse Elements
Equivalent Sets
Natural Summation
Natural Powers
Family Unions and Intersections
Comparisons
Function Inverses
Element Functions
Family Operations
Natural Equations
Integer Order
Natural Products
Integer Sums
Families
Function Images
Function Composites
Operations
Equations
Orders
Natural Sums
Integer Numbers
Converse Relations
Functions
Natural Order
Equivalence Relations
Recursion Theorem
Relations
Peano Axioms
Set Products
Natural Induction
Set Powers
Generalized Set Dualities
Natural Numbers
Set Unions and Intersections
Unordered Triples
Set Dualities
Intersection of Empty Set
Successor Sets
Partitions
Set Symmetric Differences
Ordered Pairs
Pair Unions
Set Intersections
Set Complements
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects