Why

Well, least squares, for instance.[1]

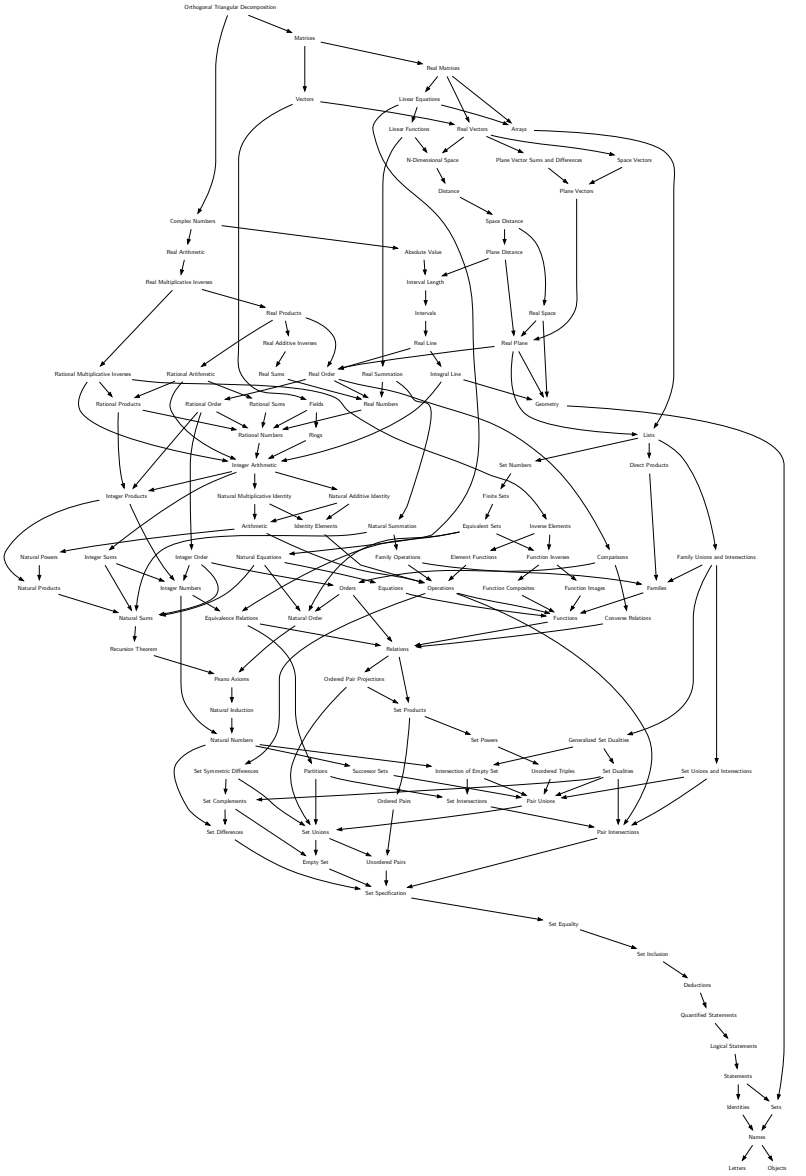
Definition

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