Why

Well, least squares, for instance.[1]

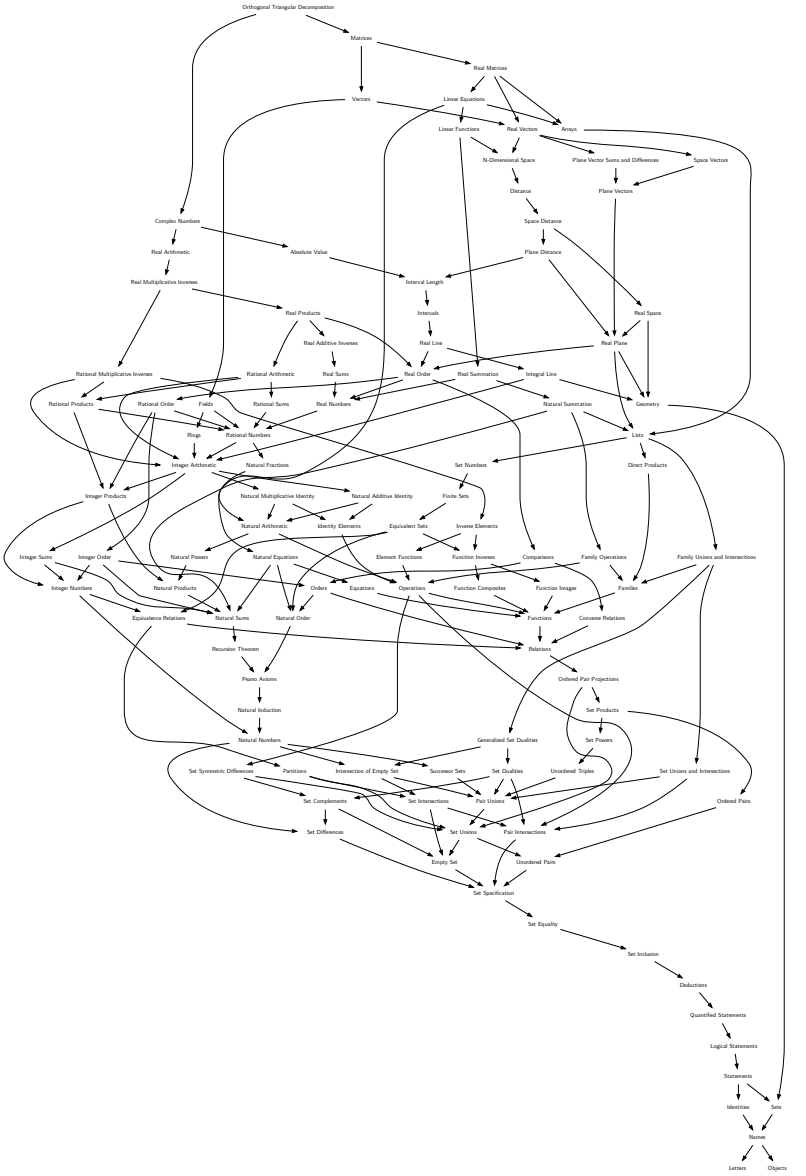
Definition

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
Rational Products
Rational Order
Fields
Rational Sums
Real Numbers
Natural Summation
Geometry
Rings
Rational Numbers
Lists
Integer Arithmetic
Natural Fractions
Set Numbers
Direct Products
Integer Products
Natural Multiplicative Identity
Natural Additive Identity
Finite Sets
Natural Arithmetic
Identity Elements
Equivalent Sets
Inverse Elements
Integer Sums
Integer Order
Natural Powers
Natural Equations
Element Functions
Function Inverses
Comparisons
Family Operations
Family Unions and Intersections
Integer Numbers
Natural Products
Orders
Equations
Operations
Function Composites
Function Images
Families
Equivalence Relations
Natural Sums
Natural Order
Functions
Converse Relations
Recursion Theorem
Relations
Peano Axioms
Ordered Pair Projections
Natural Induction
Set Products
Natural Numbers
Generalized Set Dualities
Set Powers
Set Symmetric Differences
Partitions
Intersection of Empty Set
Successor Sets
Set Dualities
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 Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects