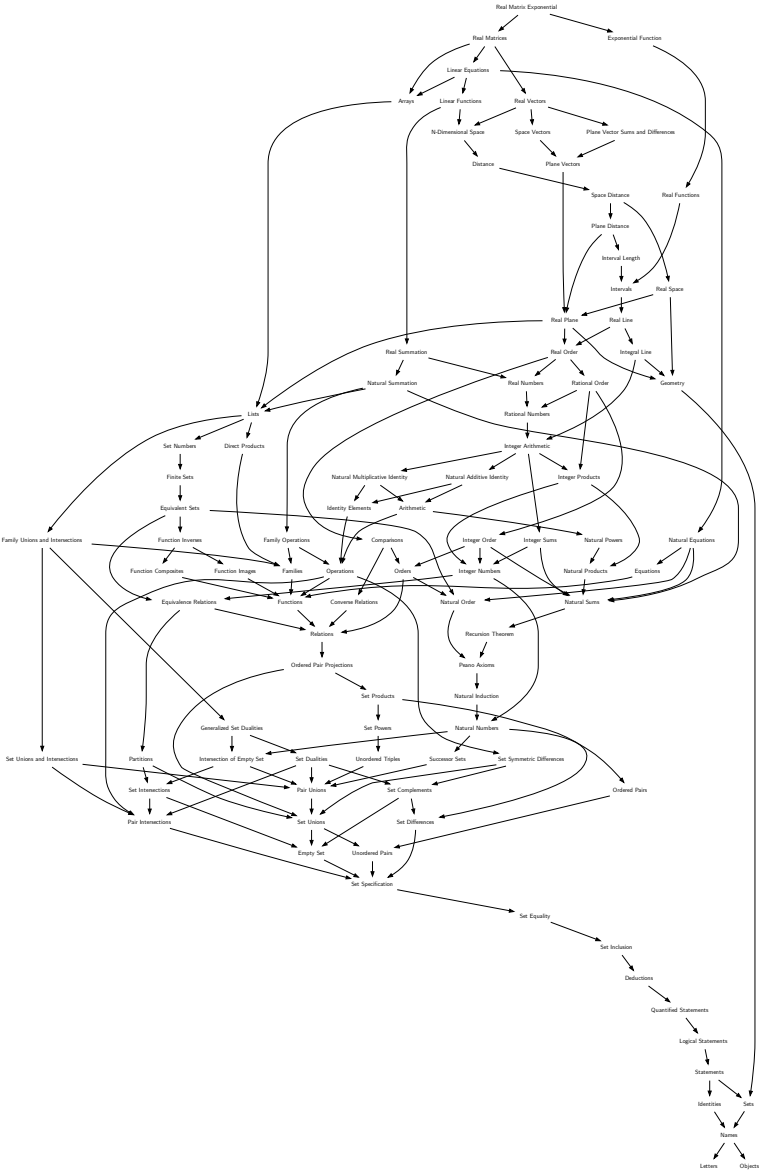
Definition

The *matrix exponential* of a real matrix $M \in \mathbf{R}^{n\times n}$ is the matrix

$$I + M + \frac{M^2}{2!} + \frac{M^3}{3!} + \cdots .$$

It is a (nontrivial) fact that this (matrix) power series converges for all $M \in \mathbf{R}^{n\times n}$.


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