Why

1

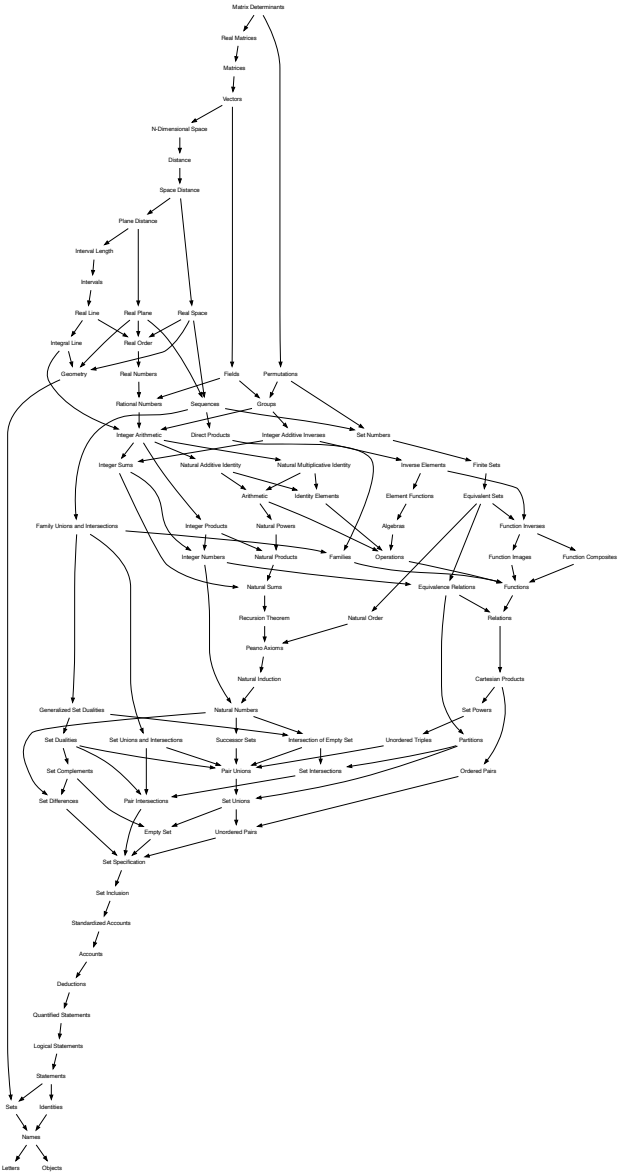
Definition

Let $A \in \mathbf{R}^{d \times d}$. The determinant of A is

$$\sum_{\sigma \in S_n} \left(\mathbf{sgn}(\sigma) \prod_{i=1}^{n} a_{i,\sigma_i} \right)$$

We denote the determinant of A by $\mathbf{det}\, A$.

[1] Future editions will include, and will probably take the genetic approach via volumes in three-dimensional space.


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