Why

[1]

Definition

The *permanent* of a matrix $A \in \mathbf{R}^{n \times m}$ is

$$\sum_{\sigma \in S_n} \prod_{i=1}^{n} A_{i,\sigma(i)}$$

where S_n is the symmetric group of degree n (see Permutations).

Notation

We denote the permanent of A by $\operatorname{perm}(A)$.

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[1]Future editions will include. The reasoning is that several counting problems to do with graphs reduce to permanents of the adjacency matrix.

Matrix Permanents

Real Matrices

Linear Equations

Linear Functions — Real Vectors

N-Dimensional Space — Space Vector — Plane Vector Sums and Differences

Distance — Plane Vectors

Arrays — Space Distance

Plane Distance

Interval Length

Intervals — Real Space

Real Line — Real Plane

Permutations — Real Summation — Real Order — Integral Line

Groups — Rational Order — Real Numbers — Geometry

Rings — Rational Numbers

Integer Arithmetic — Lists

Integer Products — Natural Additive Identity — Natural Multiplicative Identity — Set Numbers — Direct Products

Arithmetic — Identity Elements — Finite Sets

Natural Powers — Equivalent Sets — Natural Summation

Natural Equations — Natural Products — Integer Sums — Integer Order — Function Inverses — Comparisons — Family Operations — Family Unions and Intersections

Equations — Natural Sums — Integer Numbers — Orders — Function Composites — Function Images — Operations — Families

Natural Order — Recursion Theorem — Equivalence Relations — Functions — Converse Relations

Peano Axioms — Relations

Natural Induction — Set Products

Natural Numbers — Set Powers — Generalized Set Dualities — Set Union and Intersections

Set Symmetric Differences — Partitions — Intersection of Empty Set — Successor Sets — Unordered Triples — Set Dualities

Set Complements — Set Intersections — Pair Unions — Ordered Pairs

Set Differences — Set Unions — Pair Intersections

Empty Set — Unordered Pairs

Set Specification

Set Equality

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities — Sets

Names

Letters — Objects

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