Why

Definition

A *projector matrix* is an idempotent matrix. We also call these *projectors* or *projection matrices*.

Projector Matrices

Matrix Squares

Matrix-Matrix Products

Matrix-Vector Products

Linear Combinations — Matrices

Vectors

N-Dimensional Space

Real Square Roots

Distance

Real Squares

Space Distance

Real Arithmetic

Plane Distance

Real Multiplicative Inverses

Interval Length

Real Products

Intervals

Real Additive Inverses

Rational Multiplicative Inverses — Rational Arithmetic

Real Plane — Real Line — Real Space

Real Sums — Rational Products — Rational Sums

Integral Line — Real Order

Fields — Real Numbers — Rational Numbers

Geometry

Groups

Sequences

Integer Additive Inverses — Integer Arithmetic

Direct Products — Set Numbers

Integer Sums — Natural Additive Identity — Natural Multiplicative Identity — Integer Products

Finite Sets

Inverse Elements — Element Functions — Identity Elements — Arithmetic — Integer Numbers — Natural Square Roots

Family Unions and Intersections

Equivalent Sets — Algebras — Natural Equations — Natural Powers — Square Numbers

Families

Function Inverses — Function Images — Operations — Equations — Natural Order — Natural Products — Squares

Function Composites

Functions — Equivalence Relations — Natural Sums

Relations — Recursion Theorem

Cartesian Products — Peano Axioms

Generalized Set Dualities — Set Powers — Natural Induction

Set Unions and Intersections — Set Dualities — Unordered Triples — Intersection of Empty Set — Successor Sets — Partitions

Natural Numbers

Set Complements — Ordered Pairs — Pair Unions — Set Intersections

Pair Intersections — Set Differences — Set Unions

Empty Set — Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Sets — Identities

Names

Letters — Objects