Definition

The *dimension* of a subspace is the number of vectors in a spanning basis.

Notation

We denote the dimension of the subspace $L \subset \mathbf{R}^n$ by $\dim L$.

Subspace Dimensions

Vector Space Dimensions

Vector Space Bases

Span — Linearly Dependent Vectors

Vector Subspaces

Real Subspaces

Real Vector Span — Linear Combinations

Real Linear Combinations — Vector

Real Vectors

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

Plane Vectors — Distance

Space Distance

Plane Distance

Interval Length

Intervals — Real Space

Real Plane — Real Line

Real Order — Integral Line

Rational Order — Real Numbers — Geometry — Fields

Lists — Rational Numbers — Rings

Direct Products — Set Numbers — Natural Fractions — Integer Arithmetic

Finite Sets — Integer Products — Natural Multiplicative Identity — Natural Additive Identity

Equivalent Sets — Natural Arithmetic — Identity Elements

Family Unions and Intersections — Function Inverses — Comparisons — Integer Order — Integer Sums — Natural Power

Families — Function Images — Function Composition — Orders — Integer Numbers — Natural Products — Operations

Function — Natural Order — Equivalence Relations — Converse Relations — Natural Sums

Relations — Recursion Theorem

Peano Axioms — Ordered Pair Projections

Natural Induction — Set Products

Generalized Set Dualities — Natural Numbers — Set Powers

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

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