Standard basis vectors

Define $e_i \in \mathbf{R}^n$ by $[e_i]_j = 1$ if $i = j$ and 0 otherwise. Then $e_1, e_2, \ldots, e_n \in \mathbf{R}^n$ are called the *standard basis vectors* (*canonical basis vectors*) for $\mathbf{R}^n$. For example, in $\mathbf{R}^3$,

$$e_1 = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$

Real Similarity Transformations

Real Matrices

Real Vectors

Real Linear Equations

Space Vectors

Plane Vector Sums and Differences

Linear Functions

Arrays

Plane Vectors

N-Dimensional Space

Distance

Space Distance

Plane Distance

Interval Length

Real Space

Intervals

Real Plane

Real Line

Integral Line

Real Order

Real Summation

Geometry

Rational Order

Real Numbers

Natural Summation

Rational Numbers

Lists

Natural Fractions

Integer Arithmetic

Set Numbers

Direct Products

Integer Products

Natural Multiplicative Identity

Natural Additive Identity

Finite Sets

Natural Arithmetic

Identity Elements

Equivalent Sets

Function Inverses

Family Operations

Family Unions and Intersections

Integer Order

Comparisons

Integer Sums

Natural Powers

Natural Equations

Function Images

Function Composites

Families

Integer Numbers

Orders

Natural Products

Equations

Operations

Functions

Converse Relations

Equivalence Relations

Natural Sums

Natural Order

Relations

Recursion Theorem

Ordered Pair Projections

Peano Axioms

Set Products

Natural Induction

Set Powers

Natural Numbers

Generalized Set Dualities

Set Symmetric Differences

Set Partitions

Unordered Triples

Intersection of Empty Set

Successor Sets

Set Dualities

Set Unions and Intersections

Ordered Pairs

Set Complements

Set Intersections

Pair Unions

Set Differences

Set Unions

Pair Intersections

Unordered Pairs

Empty Set

Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Sets

Identities

Names

Letters

Objects