SCALED SETS

Why

Definition

The *scalar multiple* of a subset of a vector space *by* a given scalar is the set of all vectors which are the scalar product of the given scalar and the vector.

The *symmetric reflection* of a subset of a vector space is the scalar multiple by the additive inverse of the field. A subset of a vector space is *symmetric* if it is its own symmetric reflection.

Notation

Let $(V, \mathbf{F})$ be a vector space. Let $M \subset V$ and $\lambda \in \mathbf{F}$. The scalar multiple of M by λ is the set

$$\{\lambda x \mid x \in M\},$$

which we denote by λM.

The symmetric refletion of M is $(-1)M$ which we denote by $-M$. M is symmetric if $M = -M$.

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[1]Future editions will include.

Scaled Sets

Vectors

Real Vectors

N-Dimensional Space Plane Vector Sums and Differences Space Vectors

Distance Plane Vectors

Space Distance

Plane Distance

Interval Length

Intervals

Real Space Real Line

Real Plane Integral Line

Real Order Rational Order Real Numbers Fields

Geometry Rational Numbers Rings

Lists Integer Arithmetic

Set Numbers Natural Multiplicative Identity Natural Additive Identity

Finite Sets Integer Products Arithmetic Identity Elements

Direct Products Equivalent Sets Natural Powers

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

Families Function Image Function Composites Orders Integer Numbers Natural Sums Operations

Functions Converse Relations Equivalence Relations Natural Order Recursion Theorem

Relations Peano Axioms

Set Products Natural Induction

Generalized Set Dualities Set Powers Natural Numbers

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

Pair Unions Set Intersections Ordered Pairs Set Complements

Pair Intersections Set Unions Set Differences

Unordered Pairs Empty Set

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Sets Identities

Names

Letters Objects

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