Why

(provisional)[1]

Definition

An *transformation* is a function between vector spaces over the same field. In other words, a transformation is a function with a particular domain and codomain.

The utility of this definition is that in place of saying "a function between two vector spaces with the same field" we can "a transformation". So when we define properties of such functions between two vector spaces the properties are specific to such functions, and the dependence on the domain and codomain being vector spaces is explicit in the language.

---

[1]Will be given in future editions.

Transformations

Vector

Real Vectors

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

Distance

Plane Vectors

Space Distance

Plane Distance

Interval Length

Real Space · Intervals

Real Plane · Real Line

Real Order · Integral Line

Geometry · Rational Order · Real Numbers · Fields

Rational Numbers · Rings

Lists · Integer Arithmetic

Set Numbers · Integer Products · Natural Multiplicative Identity · Natural Additive Identity

Finite Sets · Arithmetic · Identity Elements

Direct Products · Equivalent Sets · Natural Powers

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

Families · Function Images · 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

4