Definition

A linear transformation T is an *isomorphism* (a *linear isomorphism*) if it is invertible. Two vector spaces V and W are *isomorphic* (or *linearly isomorphic*) if there exists an isomorphism from V to W.

Linear Isomorphisms

Invertible Linear Transformations

Linear Transformation Products

Linear Transformations

Derivatives of Sums • Derivatives of Scalar Multiples • Real Integral Additivity • Real Integral Homogeneity • Real Polynomial Derivatives

Real Linear Functions • Real Differentiable Functions • Simple Integral Additivity • Simple Integral Homogeneity

Linear Combinations • Transformations • Simple Integrals

Real Linear Combinations • Vectors • Simple Functions • Measurable Functions • Vector Space of Polynomials • Real Polynomials

Real Vectors • Real Functions • Measures • Fields • Real Arithmetic

Space Vectors • Plane Vector Sums and Differences • N-Dimensional Space • Sigma Algebras • Length Measure • Real Multiplicative Inverses

Plane Vectors • Distance • Real Series • Extended Real Numbers

Space Distance • Real Limits • Rings

Plane Distance • Absolute Value

Real Space • Interval Length • Real Products • Real Additive Inverses

Intervals

Real Plane • Real Line • Integral Line • Real Order • Real Sequences • Real Sums • Rational Arithmetic • Rational Multiplicative Inverses

Geometry • Subset Algebras • Sequences • Rational Order • Real Numbers • Rational Sums • Rational Products

Cardinality • Lists • Rational Numbers

Set Numbers • Direct Products • Integer Arithmetic • Natural Fractions • Inverse Elements

Finite Sets • Natural Multiplicative Identity • Natural Additive Identity

Equivalent Sets • Integer Products • Identity Elements • Natural Arithmetic • Element Functions

Function Inverses • Family Unions and Intersections • Comparisons • Integer Order • Integer Sums • Natural Powers • Operations

Function Images • Function Composites • Families • Orders • Integer Numbers • Natural Products

Functions • Equivalence Relations • Converse Relations • Natural Order • Natural Sums

Relations • Recursion Theorem

Ordered Pair Projections • Peano Axioms

Subset Systems • Set Products • Generalized Set Dualities • Natural Numbers • Characteristic Functions

Ordered Pairs • Set Powers • Natural Induction

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

Set Intersections • Pair Unions • Set Complements

Set Unions • Pair Intersections • Set Differences

Unordered Pairs • Empty Set

Set Specification

Set Equality

Set Inclusion

Deduction

Quantified Statements

Logical Statements

Statements

Sets • Identities

Names

Letters • Objects