## Definition

An *affine transformation* is one which maps an affine combination of two vectors to the affine combination of their results under the same transformation. These are sometimes called *affine functions*.

Affine Transformations

Transformations

Vectors

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 Line    Real Plane

Real Order    Integral Line

Rational Order    Fields    Real Numbers    Geometry

Rational Numbers    Rings    Lists

Integer Arithmetic    Set Numbers    Direct Products

Integer Products    Natural Multiplicative Identity    Natural Additive Identity    Finite Sets

Arithmetic    Identity Elements    Equivalent Sets

Integer Sums    Integer Order    Natural Powers    Comparisons    Function Inverse    Family Unions and Intersections

Integer Numbers    Natural Products    Orders    Operations    Function Image    Function Composite    Families

Natural Sums    Equivalence Relations    Natural Order    Converse Relations    Functions

Recursion Theorem    Relations

Peano Axioms    Ordered Pair Projections

Natural Induction    Set Products

Natural Numbers    Generalized Set Dualities    Set Powers

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

Set Complements    Set Intersections    Pair Unions    Ordered Pairs

Set Differences    Set Unions    Pair Intersections

Empty Set    Unordered Pairs

Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Identities    Sets

Names

Letters    Objects