Definition

A function $f : \mathbf{R}^n \to \mathbf{R}$ is called a *real affine transformation* (or *affine transformation*) if it maps an affine combination of two vectors to the affine combination of their results (with the same coefficients).

Real Affine Transformations

Real Affine Combinations

Real Linear Combinations

N-Dimensional Lines

Real Vectors

N-Dimensional Space

Space Vectors

Plane Vector Sums and Differences

Distance

Plane Vectors

Space Distance

Plane Distance

Interval Length

Real Space

Intervals

Real Line

Real Plane

Geometry

Integral Line

Real Order

Rational Order

Real Numbers

Rational Numbers

Lists

Integer Arithmetic

Natural Fractions

Set Numbers

Direct Products

Integer Products

Natural Additive Identity

Natural Multiplicative Identity

Finite Sets

Identity Elements

Natural Arithmetic

Equivalent Sets

Function Inverses

Family Unions and Intersections

Natural Power

Integer Sums

Integer Order

Comparisons

Operations

Function Images

Function Composites

Families

Natural Products

Integer Numbers

Orders

Natural Order

Converse Relations

Equivalence Relations

Functions

Natural Sums

Recursion Theorem

Relations

Peano Axioms

Ordered Pair Projections

Natural Induction

Set Products

Natural Numbers

Set Powers

Generalized Set Dualities

Set Symmetric Differences

Successor Sets

Unordered Triples

Set Dualities

Intersection of Empty Set

Set Partitions

Set Unions and Intersections

Set Complements

Pair Unions

Set Intersections

Ordered Pairs

Set Differences

Set Unions

Pair Intersections

Empty Set

Unordered Pairs

Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Sets

Identities

Names

Letters

Objects