Definition

Suppose G is a finite groupwith identity 1 and suppose V is a vector space over the field $\mathbf{C}$ of complex numbers. A *linear representation* $\rho : G \to GL(V)$ of G in V is a group homomorphismfrom G to the general linear group $GL(V)$. Given ρ, we call V a *representation space* (or *representation*) of G

Suppose V has finite dimension n. In this case, we call n the *degree* of the representation ρ. Given a basis $e_1, \ldots, e_n$ of V,


Linear Representations of Groups
General Linear Groups
Vector Space Isomorphisms
Real General Linear Groups
Vector Space Dimensions
Vector Space Bases
Real Matrix Inverses
Linear Transformations
Linearly Dependent Vectors
Span
Real Matrix-Matrix Products
Complex Matrices
Derivatives of Scalar Multiples
Derivatives of Sums
Real Integral Homogeneity
Real Integral Additivity
Real Polynomial Derivatives
Vector Space of Polynomials
Linear Combinations
Vector Subspaces
Transformations
Real Matrix-Vector Products
Matrices
Real Differentiable Functions
Simple Integral Homogeneity
Simple Integral Additivity
Real Polynomials
Real Subspaces
Vectors
Vectors as Matrices
Real Linear Functions
Simple Integrals
Real Vectors Span
Fields
Real Inner Product
Real Matrices
Groups
Simple Functions
Measurable Functions
Real Linear Combinations
Real Norm
Complex Arithmetic
Rings
Real Linear Equations
Real Functions
Measures
Real Vectors
Space Inner Product
Complex Products
Linear Functions
Arrays
Length Measure
Sigma Algebras
Plane Vector Sums and Differences
Space Norm
N-Dimensional Space
Plane Inner Product
Complex Sums
Real Series
Extended Real Numbers
Space Vectors
Plane Norm
Distance
Right Triangle Sides Relation
Real Limits
Plane Vectors
Space Distance
Complex Numbers
Real Squares
Absolute Value
Plane Distance
Real Arithmetic
Interval Length
Real Multiplicative Inverses
Intervals
Real Space
Real Products
Real Line
Real Plane
Square Numbers
Real Additive Inverses
Integral Line
Real Sequences
Squares
Real Order
Real Sums
Rational Arithmetic
Rational Multiplicative Inverses
Real Summation
Subset Algebras
Sequences
Geometry
Rational Order
Real Numbers
Rational Sums
Rational Products
Inverse Elements
Natural Summation
Cardinality
Rational Numbers
Element Functions
Lists
Natural Fractions
Integer Arithmetic
Set Numbers
Direct Products
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Finite Sets
Natural Arithmetic
Identity Elements
Equivalent Sets
Family Operations
Comparisons
Integer Order
Integer Sums
Natural Powers
Operations
Natural Equations
Function Inverses
Family Unions and Intersections
Orders
Integer Numbers
Natural Products
Equations
Function Images
Function Composites
Families
Converse Relations
Equivalence Relations
Natural Order
Natural Sums
Functions
Relations
Recursion Theorem
Ordered Pair Projections
Peano Axioms
Subset Systems
Set Products
Characteristic Functions
Natural Induction
Ordered Pairs
Set Powers
Natural Numbers
Generalized Set Dualities
Unordered Triples
Successor Sets
Set Symmetric Differences
Intersection of Empty Set
Set Dualities
Partitions
Set Unions and Intersections
Pair Unions
Set Complements
Set Intersections
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects