Why

Definition

A *linear functional* on a vector space V with field k is a function $f : V \to k$ which satisfies

$$f(\lambda x + \mu y) = \lambda f(x) + \mu f(y)$$

for all $\lambda, \mu \in k$ and $x, y \in V$.

Examples

1. Define $F : \mathbf{C}^n \to \mathbf{C}$ by

   $$F(x_1, \ldots, x_n) = c_1 x_1 + c_2 x_2 + \cdots + c_n x_n$$

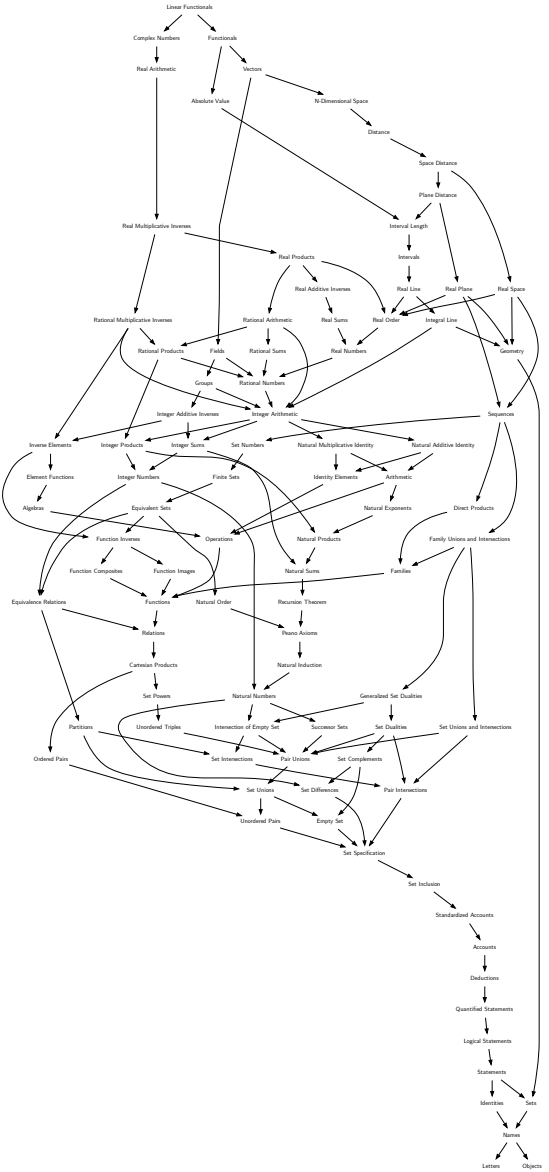
   where $c_1, \ldots, c_n \in \mathbf{C}$.

2. Let $(c_n)_{n \in \mathbf{N}} \in \ell^\infty$. Define $F_c : \ell^1 \to \mathbf{C}$ by

   $$F_c((x_n)_{n \in \mathbf{N}}) = \sum_{n=1}^{\infty} c_n x_n$$

   .

$\wp(A)$.


Linear Functionals
Complex Numbers
Functionals
Real Arithmetic
Vectors
Absolute Value
N-Dimensional Space
Distance
Space Distance
Plane Distance
Real Multiplicative Inverses
Interval Length
Real Products
Intervals
Real Additive Inverses
Real Line
Real Plane
Real Space
Rational Multiplicative Inverses
Rational Arithmetic
Real Sums
Real Order
Integral Line
Rational Products
Fields
Rational Sums
Real Numbers
Geometry
Groups
Rational Numbers
Integer Additive Inverses
Integer Arithmetic
Sequences
Inverse Elements
Integer Products
Integer Sums
Set Numbers
Natural Multiplicative Identity
Natural Additive Identity
Element Functions
Integer Numbers
Finite Sets
Identity Elements
Arithmetic
Algebras
Equivalent Sets
Natural Exponents
Direct Products
Function Inverses
Operations
Natural Products
Family Unions and Intersections
Function Composites
Function Images
Natural Sums
Families
Equivalence Relations
Functions
Natural Order
Recursion Theorem
Relations
Peano Axioms
Cartesian Products
Natural Induction
Set Powers
Natural Numbers
Generalized Set Dualities
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Set Dualities
Set Unions and Intersections
Ordered Pairs
Set Intersections
Pair Unions
Set Complements
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects