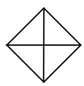


Why

We allow measures to take complex values.[1]

Definition

A complex-valued function on a sigma algebra is *countably additive* if the result of the function applied to the union of a disjoint countable family of distinguished sets is the limit of the partial sums of the results of the function applied to each of the sets individually. The limit of the partial sums must exist irregardless of the summand order.

A *complex measure* is an complex-valued function on a sigma algebra that is (1) zero on the empty set and (2) countably additive. We call the result of the function applied to a set in the sigma algebra the *complex measure* (or when no ambiguity arises, the *measure*) of the set.

Since the codomain of a complex measures is the complex numbers, the sum corresponding to every countable union must be absolutely convergent (?) .[2]

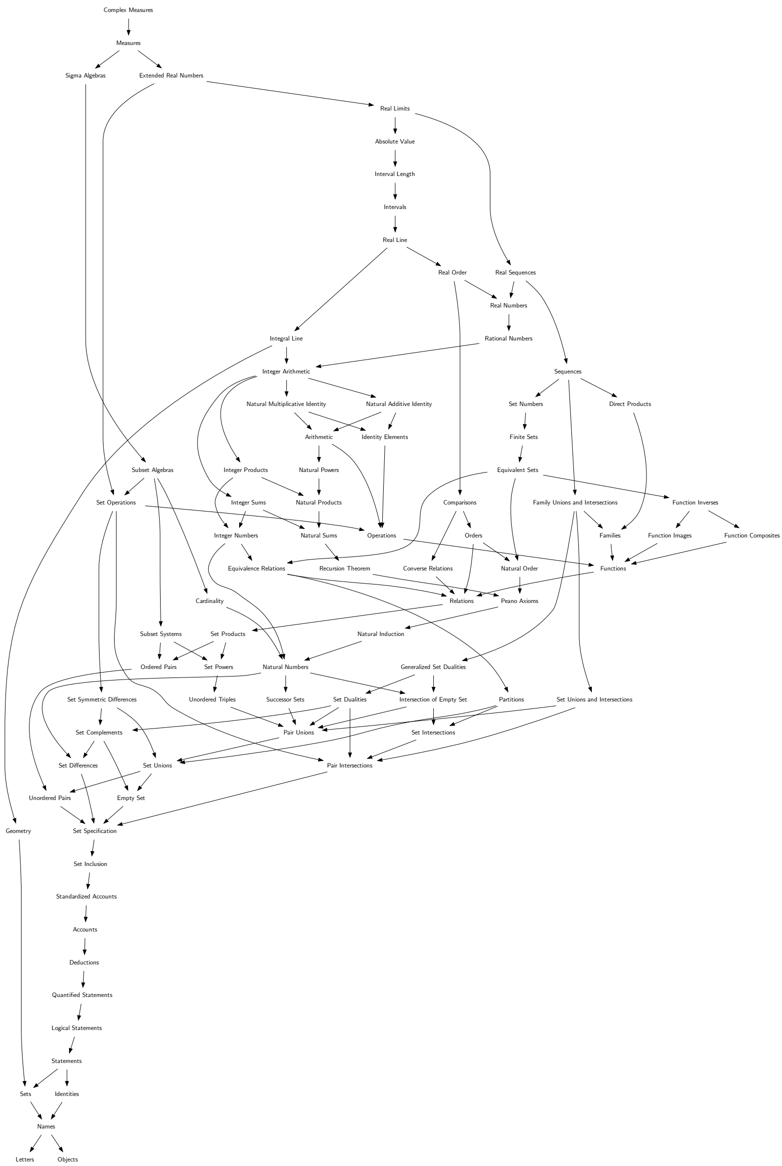
Notation

We denote complex measures by μ a mnemonic for "measure." Let C denote the set of complex numbers. Let $(X, \mathcal{A})$ be a measurable space and let $\mu : \mathcal{A} \to C$. Then μ is a complex

[1] Future editions will expand.
[2] Future editions will define.

measure if

1. $\mu(\varnothing) = 0$ and
2. $\mu(\cup_i A_i) = \lim_{n\to\infty} \sum_{k=1}^{n} \mu(A_k)$ for all disjoint families $(A_n)_n$.



Complex Measures
Measures
Sigma Algebras
Extended Real Numbers
Real Limits
Absolute Value
Interval Length
Intervals
Real Line
Real Order
Real Sequences
Real Numbers
Integral Line
Rational Numbers
Integer Arithmetic
Sequences
Natural Multiplicative Identity
Natural Additive Identity
Set Numbers
Direct Products
Arithmetic
Identity Elements
Finite Sets
Subset Algebras
Integer Products
Natural Powers
Equivalent Sets
Set Operations
Integer Sums
Natural Products
Comparisons
Family Unions and Intersections
Function Inverses
Integer Numbers
Natural Sums
Operations
Orders
Families
Function Images
Function Composites
Equivalence Relations
Recursion Theorem
Converse Relations
Natural Order
Functions
Cardinality
Relations
Peano Axioms
Subset Systems
Set Products
Natural Induction
Ordered Pairs
Set Powers
Natural Numbers
Generalized Set Dualities
Set Symmetric Differences
Unordered Triples
Successor Sets
Set Dualities
Intersection of Empty Set
Partitions
Set Unions and Intersections
Set Complements
Pair Unions
Set Intersections
Set Differences
Set Unions
Pair Intersections
Unordered Pairs
Empty Set
Geometry
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects