Why

We want a norm on the space of measures.

Definition

The *total variation* of finite measure is the variation measure of the base set. We show below that the total variation is a norm on the vector space of finite measures.

Notation

Let $(X, \mathcal{A})$ be a measurable space and $\mu : X \to \mathbf{R}$ be a finite signed measure. We denote the total variation by $\|\mu\|$.

Let $|\mu|$ be the variation of μ. Then, $\|\mu\| = |\mu|(X)$.

Total Variation

Norms

Functionals

Variation Measure

Real Norm

Vectors

Measure

Real Vectors

Sigma Algebras

N-Dimensional Space

Space Vectors

Plane Vector Sums and Differences

Real Series

Extended Real Numbers

Space Norm

Distance

Real Limits

Space Distance

Plane Norm

Plane Distance

Absolute Value

Plane Vectors

Interval Length

Intervals

Real Space

Real Sequences

Real Line

Real Plane

Integral Line

Real Order

Sequences

Subset Algebras

Geometry

Rational Order

Real Numbers

Fields

Cardinality

Rational Numbers

Rings

Lists

Integer Arithmetic

Direct Products

Set Numbers

Integer Products

Natural Additive Identity

Natural Multiplicative Identity

Finite Sets

Arithmetic

Identity Elements

Equivalent Sets

Comparisons

Integer Order

Natural Powers

Integer Sums

Operations

Function Inverses

Family Unions and Intersections

Orders

Integer Numbers

Natural Products

Function Composites

Function Images

Families

Converse Relations

Natural Sums

Natural Order

Functions

Equivalence Relations

Recursion Theorem

Relations

Peano Axioms

Ordered Pair Projections

Natural Induction

Set Products

Subset Systems

Natural Numbers

Ordered Pairs

Set Powers

Generalized Set Dualities

Set Symmetric Differences

Successor Sets

Unordered Triples

Set Dualities

Intersection of Empty Set

Partitions

Set Unions and Intersections

Set Complements

Pair Unions

Set Intersections

Set Differences

Set Unions

Empty Set

Pair Intersections

Unordered Pairs

Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Sets

Identities

Names

Letters

Objects