Why

If we scale an integrable function is the resulting function integrable? If so, what is its integral?

Result

Proposition 1. *Suppose* $f : \mathbf{R} \to \mathbf{R}$ *is integrable. Then for any* $\lambda \in \mathbf{R}$, *the function* λf *is integrable and*

$$\int \lambda f = \lambda \int f$$

Real Integral Homogeneity

Simple Integral Homogeneity

Simple Integrals

Measurable Functions

Measures

Sigma Algebras

Real Series — Extended Real Numbers

Real Limits

Simple Functions

Absolute Value

Real Functions

Interval Length

Intervals

Real Line

Real Order

Real Sequences

Rational Order

Real Numbers

Subset Algebras

Sequences

Integral Line

Rational Numbers

Cardinality

Lists

Integer Arithmetic

Set Numbers

Direct Products

Natural Additive Identity

Natural Multiplicative Identity

Natural Fractions

Finite Sets

Integer Products

Identity Elements

Natural Arithmetic

Equivalent Sets

Comparisons

Integer Order

Integer Sums

Natural Powers

Operations

Function Inverses

Family Unions and Intersections

Orders

Integer Numbers

Natural Products

Function Composites

Function Images

Families

Converse Relations

Natural Sums

Natural Order

Equivalence Relations

Functions

Recursion Theorem

Relations

Peano Axioms

Ordered Pair Projections

Characteristic Functions

Natural Induction

Set Products

Subset Systems

Generalized Set Dualities

Natural Numbers

Set Powers

Ordered Pairs

Successor Sets

Unordered Triples

Intersection of Empty Set

Partitions

Set Symmetric Differences

Set Dualities

Set Unions and Intersections

Pair Unions

Set Intersections

Set Complements

Set Differences

Set Unions

Pair Intersections

Unordered Pairs

Empty Set

Geometry

Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Sets

Identities

Names

Letters

Objects