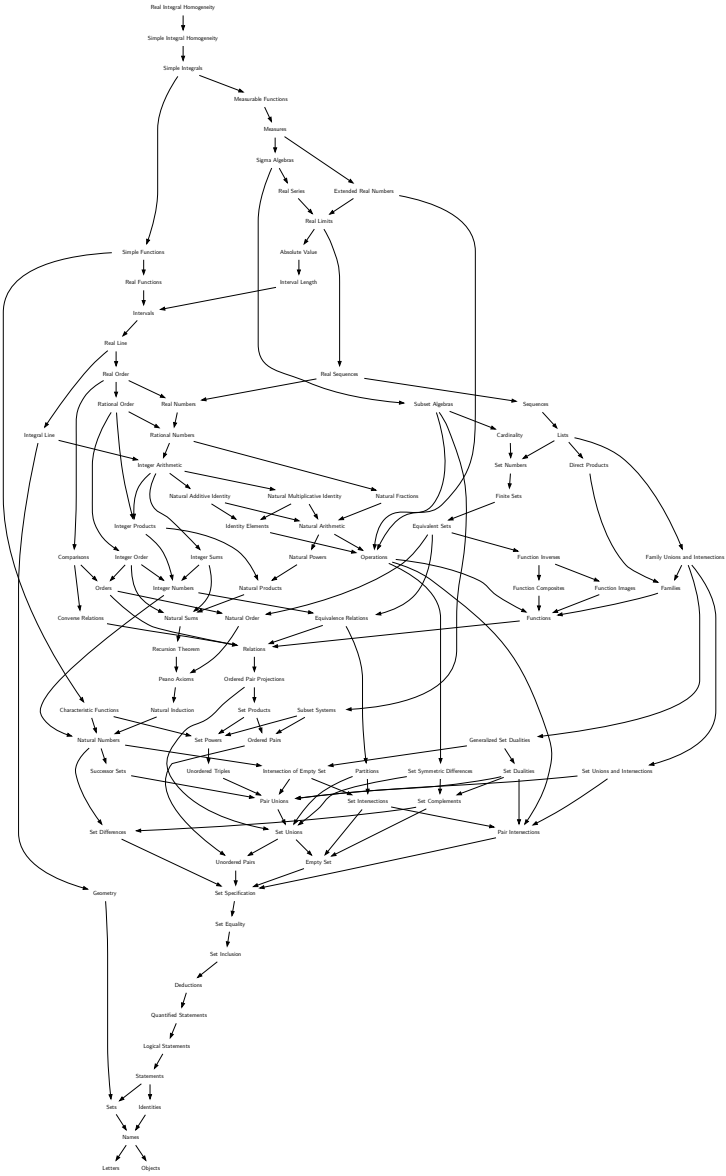
Why

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 Inverse
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
Natural Numbers
Set Powers
Ordered Pairs
Generalized Set Dualities
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