Why

We want to add real numbers.[1]

Definition

The *real sum* of two real numbers R and S is the set

$$\{t \in \mathbf{Q} \mid \exists r \in R, s \in S \text{ with } t = r + s\}.$$

Notation

We denote the sum of two real numbers x and y by $x + y$.

Properties

We can show the following.[2]

Proposition 1 (Associative)**.** $x + (y + z) = (x + y) + z$

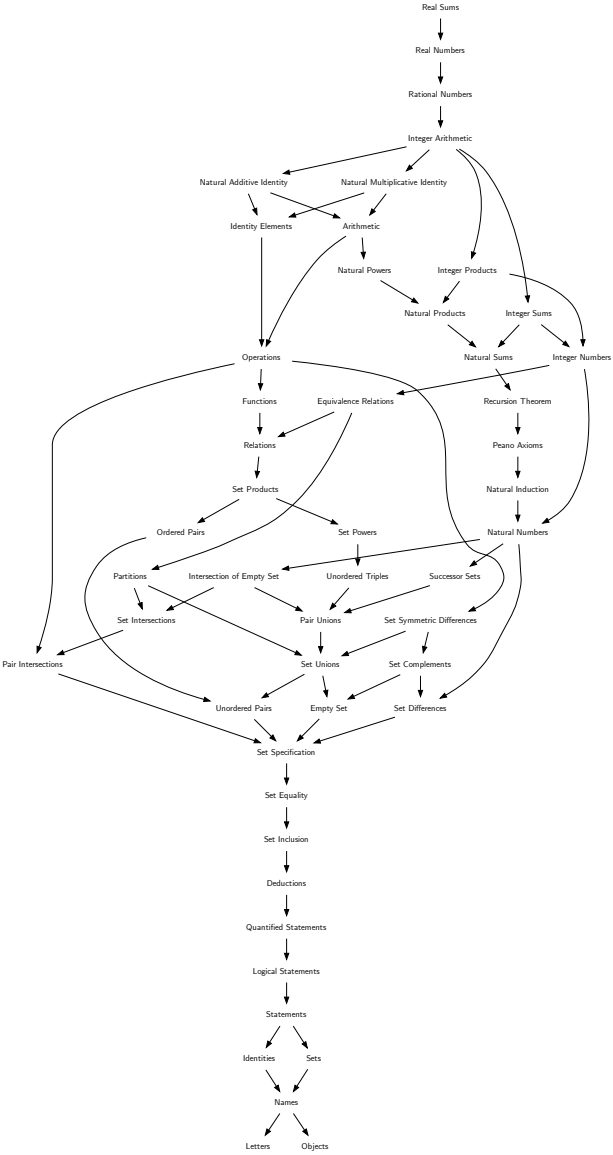
Proposition 2 (Commutative)**.** $x + y = y + x$

Proposition 3 (Identity)**.** *The set of negative rational numbers is the additive identity.*

We denote the additive identity of $\mathbf{R}$ under $+$ by $0_{\mathbf{R}}$. When it is clear from context, we call $0_{\mathbf{R}}$ "zero".

[1] Future editions will expand.

[2] Accounts will appear in future editions.


Real Sums
Real Numbers
Rational Numbers
Integer Arithmetic
Natural Additive Identity
Natural Multiplicative Identity
Identity Elements
Arithmetic
Natural Powers
Integer Products
Natural Products
Integer Sums
Operations
Natural Sums
Integer Numbers
Functions
Equivalence Relations
Recursion Theorem
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Peano Axioms
Set Products
Natural Induction
Ordered Pairs
Set Powers
Natural Numbers
Partitions
Intersection of Empty Set
Unordered Triples
Successor Sets
Set Intersections
Pair Unions
Set Symmetric Differences
Pair Intersections
Set Unions
Set Complements
Unordered Pairs
Empty Set
Set Differences
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
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Objects