Why

What is the multiplicative inverse in the reals?

Result

We can show the following.[1]

Proposition 1. *The multiplicative inverse of R is, if $R \neq 0_{\mathbf{R}}$,*

1. *if $0_{\mathbf{Q}} \in \mathbf{R}$, then $\{q \in \mathbf{Q} \mid q \leq 0_{\mathbf{Q}}\} \cup \{r^{-1}\} \exists s < r, (r \notin \mathbf{R})$*
2. *If $0_{\mathbf{Q}} \notin \mathbf{R}$, then the additive inverse of the multiplicative inverse of the additive inverse of R.*

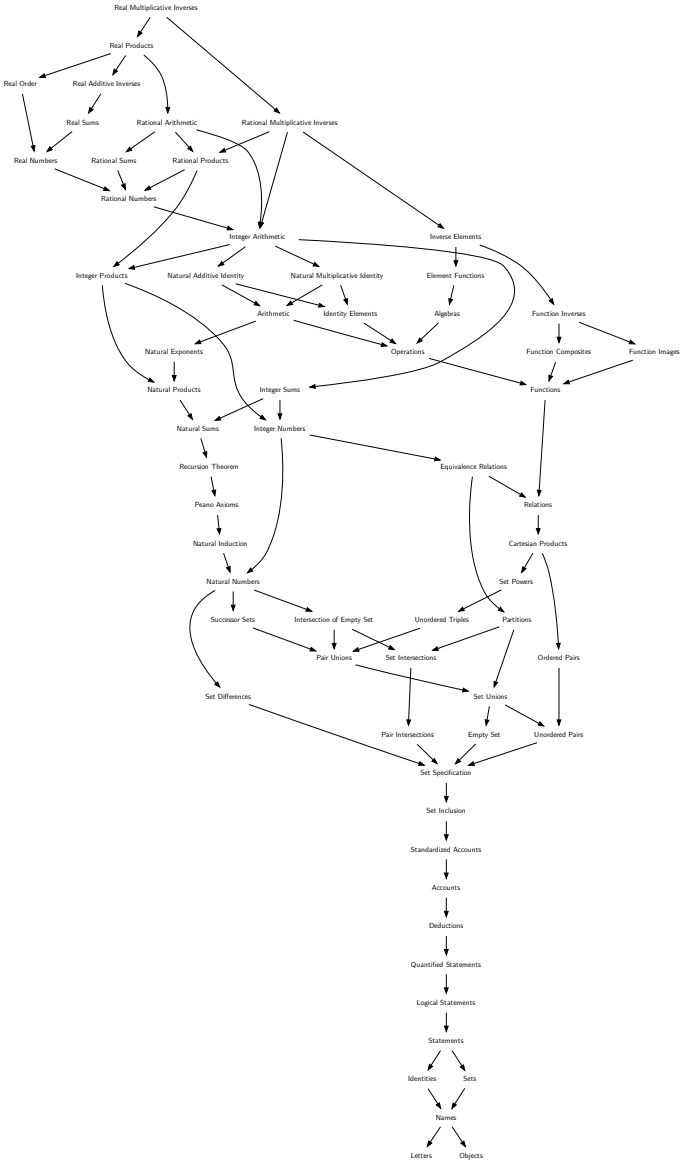
Notation

We denote the multiplicative inverse of $r \in \mathbf{R}$ by r^{-1}. We denote $q \cdot (r^{-1})$ by q/r.

Division

We call the operation $(a, b) \mapsto a/b$ *real division.*

[1] The account will appear in future editions.


Real Multiplicative Inverses
Real Products
Real Order
Real Additive Inverses
Real Sums
Rational Arithmetic
Rational Multiplicative Inverses
Real Numbers
Rational Sums
Rational Products
Rational Numbers
Integer Arithmetic
Inverse Elements
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Element Functions
Arithmetic
Identity Elements
Algebras
Function Inverses
Natural Exponents
Operations
Function Composites
Function Images
Natural Products
Integer Sums
Functions
Natural Sums
Integer Numbers
Recursion Theorem
Equivalence Relations
Peano Axioms
Relations
Natural Induction
Cartesian Products
Natural Numbers
Set Powers
Successor Sets
Intersection of Empty Set
Unordered Triples
Partitions
Pair Unions
Set Intersections
Ordered Pairs
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects