Why

We want to order the rationals.

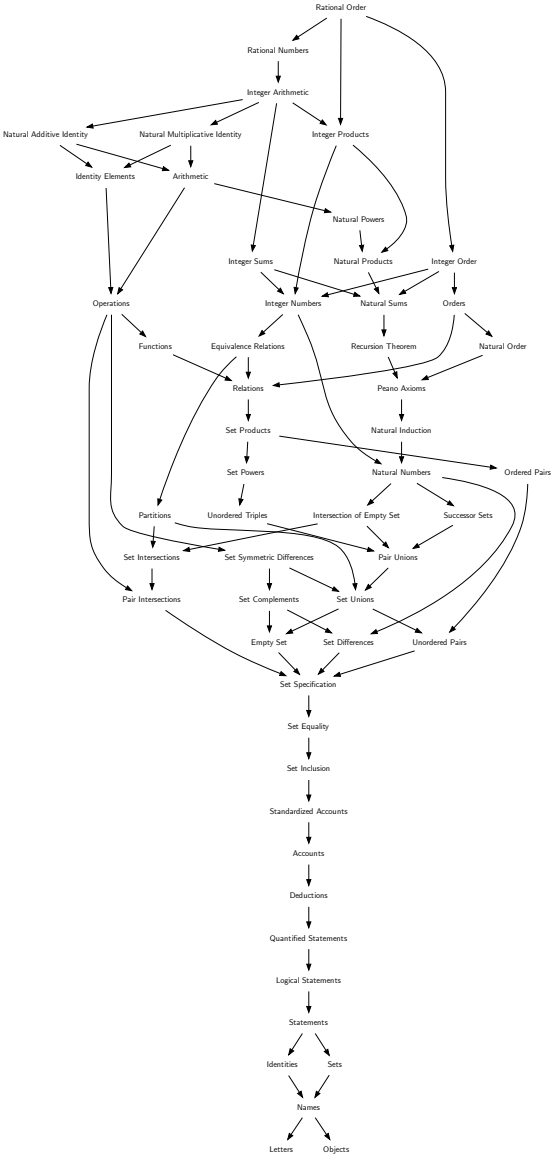
Definition

Consider $[(a,b)], [(b,c)] \in \mathbf{Q}$ with $0_{\mathbf{Z}} < b, d$ If $ad < bc$, then we say that $[(a,b)]$ is *less than* $[(b,c)]$.[1] If $[(a,b)]$ is less than $[(b,c)]$ or equal, then we say that $[(a,b)]$ is *less than or equal to* $[(b,c)]$.

Notation

If $x, y \in \mathbf{Q}$ and x is less than y, then we write $x < y$. If x is less than or equal to y, we write $x \leq y$.

[1] One needs to show that this is well-defined. The account will appear in future editions.


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