Why

We want to order the rationals.

Definition

Consider $[(a, b)], [(b, c)] \in \mathbf{Q}$. 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 $x \leq y$.

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

Rational Order

Rational Numbers

Integer Arithmetic

Integer Order Integer Products Natural Multiplicative Identity Natural Additive Identity

Integer Numbers Arithmetic Identity Elements

Natural Exponents Operations

Functions

Natural Products

Natural Sums

Recursion Theorem Equivalence Relations

Peano Axioms Relations

Natural Induction Cartesian Products

Natural Numbers Set Powers

Intersection of Empty Set Successor Sets Partitions Unordered Triples

Set Intersections Pair Unions Ordered Pairs

Set Differences

Set Unions

Pair Intersections Empty Set Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Definitions Accounts

Deductions Quantified Statements

Logical Statements

Statements

Identities Sets

Names

Objects Letters

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