Why

We want to order the integers.

Definition

Consider $[(a, b)], [(b, c)] \in \mathbf{Z}$. If $a + d < b + c$, 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 $x, y \in \mathbf{Z}$ and x is less than y, then we write $x < y$. If x is less than or equal to y, we write $x \leq y$.

Positive and Negative Integers

We call an integer z *positive* if $z > 0$ and we call z *negative* if $z < 0$.[2] We call an integer z *nonnegative* if $z > 0$ or $z = 0$ and *nonpositive* if $z < 0$ or $z = 0$.

Notation

We denote the set $\{z \in \mathbf{Z} \mid z \geq 0_Z\}$ by $\mathbf{Z}_{++}$.

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

[2]Some authors use the term positive for the case when $z > 0$ or $z = 0$. We use the term nonnegative in this case.

Integer Order

Integer Numbers

Natural Sums

Equivalence Relations

Recursion Theorem

Relations

Peano Axioms

Cartesian Products

Natural Induction

Set Powers

Natural Numbers

Partitions

Unordered Triples

Intersection of Empty Set

Successor Sets

Ordered Pairs

Set Intersections

Pair Unions

Set Unions

Set Differences

Unordered Pairs

Empty Set

Pair Intersections

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects