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

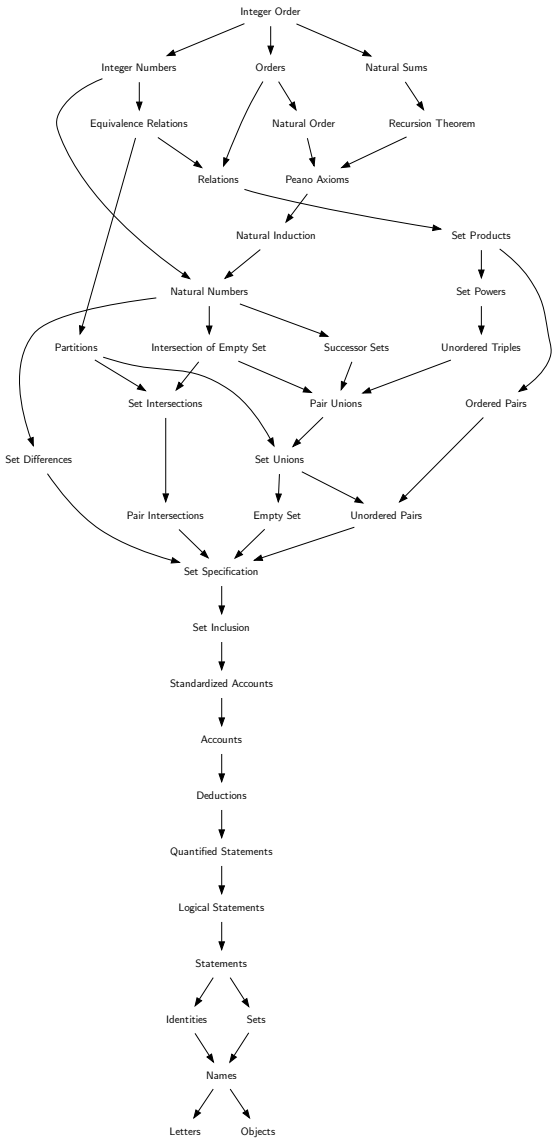
We call an integer z *positive* if $z > 0$ and we call z *negative* if $z < 0$.[2] We call an integer z *nonnegative* if $z > 0$ or $z = 0$ and *nonpositive* if $z < 0$ or $z = 0$.

Notation

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

[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
Orders
Natural Sums
Equivalence Relations
Natural Order
Recursion Theorem
Relations
Peano Axioms
Natural Induction
Set Products
Natural Numbers
Set Powers
Partitions
Intersection of Empty Set
Successor Sets
Unordered Triples
Set Intersections
Pair Unions
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