Why

We want sums to follow those of natural numbers.[1]

Definition

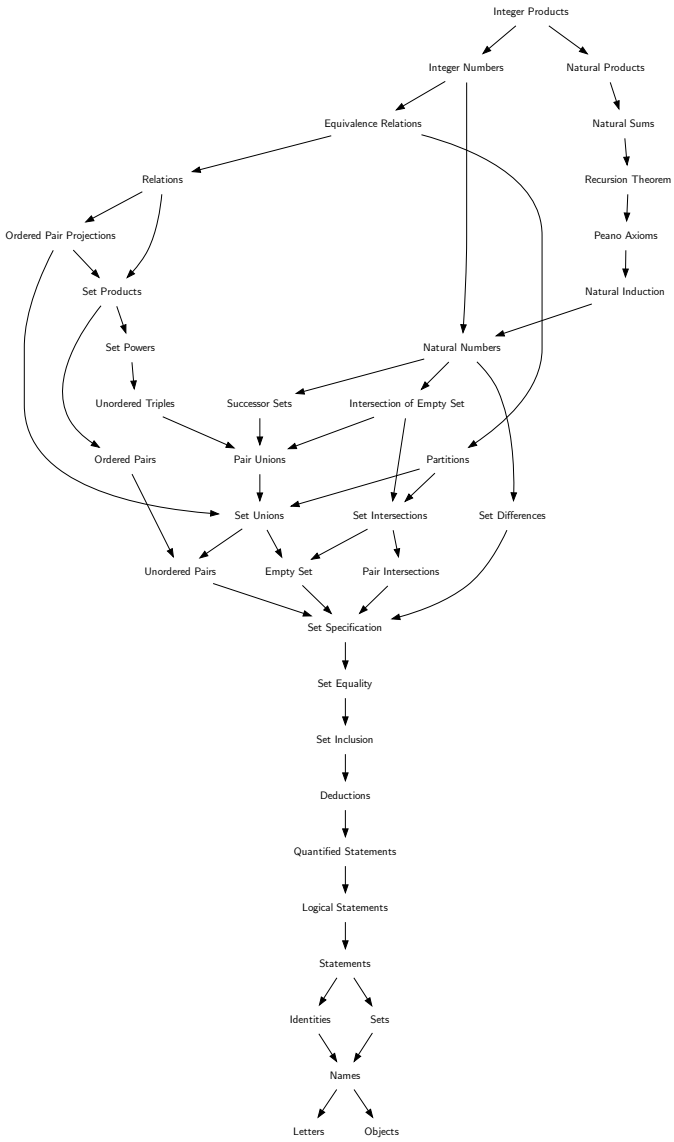
Consider $[(a,b)], [(b,c)] \in \mathbf{Z}$. The *integer product* of $[(a,b)]$ with $[(b,c)]$ is $[(ac+bd, ad+bc)]$.[2]

Notation

We denote the product of $[(a,b)]$ and $[(c,d)]$ by $[(a,b)]\cdot[(b,c)]$ So if $x, y \in \mathbf{Z}$ then the sum of x and y is $x \cdot y$. As with natural products, we often drop the $\cdot$ and write xy for $x \cdot y$.

[1] Future editions will modify this.

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


Integer Products
Integer Numbers
Natural Products
Equivalence Relations
Natural Sums
Relations
Recursion Theorem
Ordered Pair Projections
Peano Axioms
Set Products
Natural Induction
Set Powers
Natural Numbers
Unordered Triples
Successor Sets
Intersection of Empty Set
Ordered Pairs
Pair Unions
Partitions
Set Unions
Set Intersections
Set Differences
Unordered Pairs
Empty Set
Pair Intersections
Set Specification
Set Equality
Set Inclusion
Deductions
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Logical Statements
Statements
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