Why

[1]

Definition

Let $a \in \mathbf{Z}$ and let $p \in \mathbf{N}$. Define the first power of a to be a. Define the second power of a to be a^2. Define the pth power of a for $p \geq 2$ to be $a^p = aa^{p-1}$.

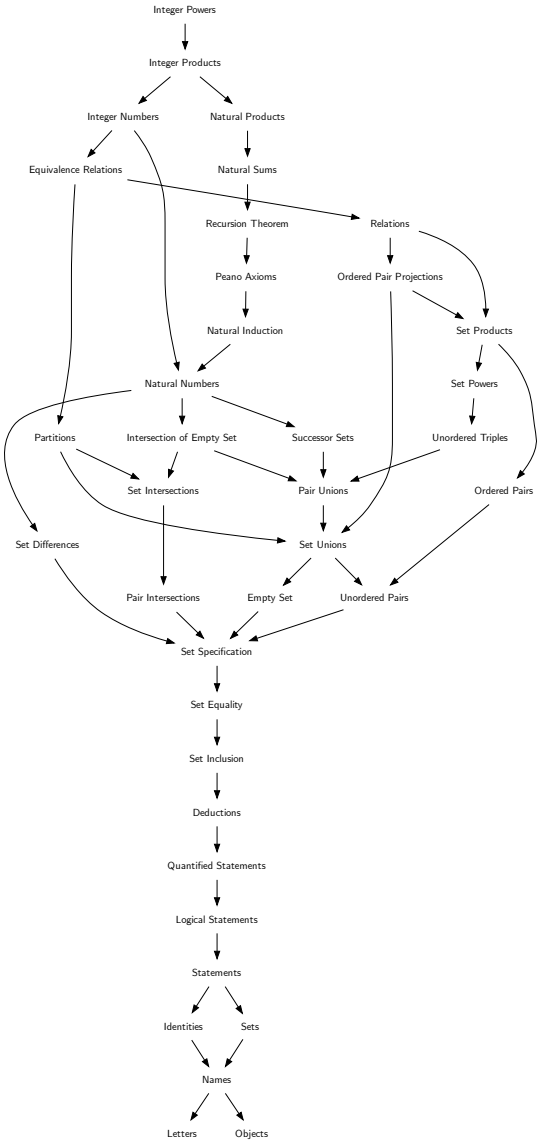
Negative powers

Let $a \in \mathbf{Z}$ and let $p \in \mathbf{Z}$ with $p < 0$. Then define a^p to be $1/a^{-p}$. Since p is negative, $-p$ is positive and so we have defined a^{-p}.

Zero

Define $a^0 = 1$.

[1] Future editions will include. This sheet include only a very basic outline of a few definitions.


Integer Powers
Integer Products
Integer Numbers
Natural Products
Equivalence Relations
Natural Sums
Recursion Theorem
Relations
Peano Axioms
Ordered Pair Projections
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 Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects