Why

What are addition and multiplication for integers? What are the identity elements?

Definition

We call the operation of forming integer sums *integer addition*. We call the operation of forming integer products *integer multiplication*.

Results

It is easy to see the following.[1]

Proposition 1. *The additive identity for* $\mathbf{Z}$ *is* $[(0,0)]$.

Proposition 2. *The multiplicative identity for* $\mathbf{Z}$ *is* $[(0,0)]$.

Notation

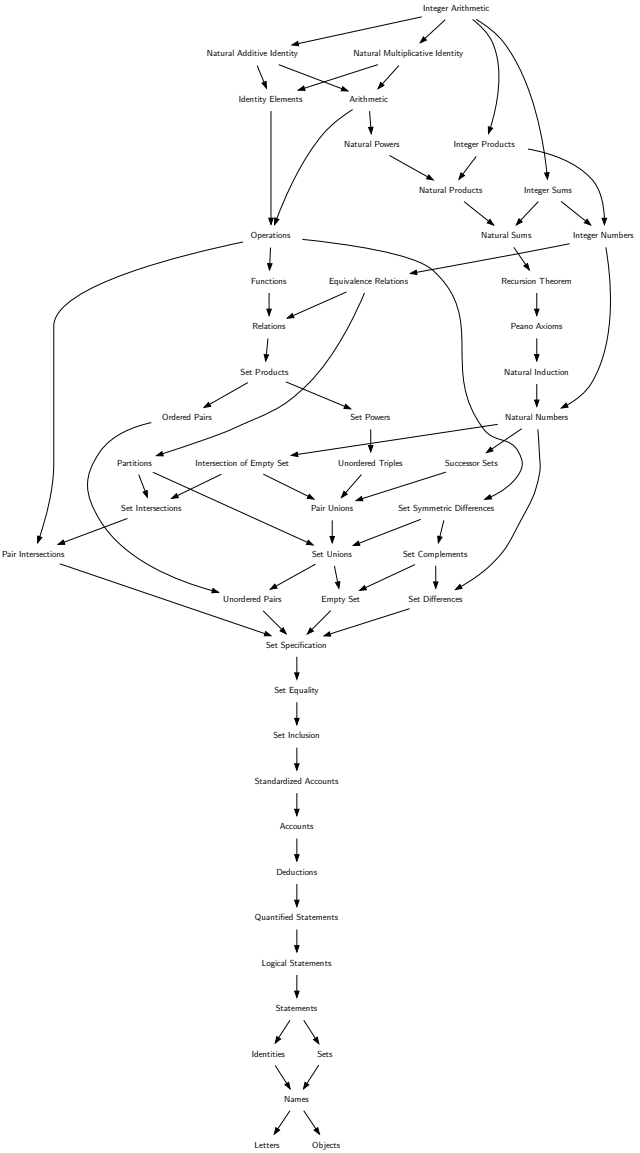
We denote the additive identity of $\mathbf{Z}$ by $0_{\mathbf{Z}}$ and the multiplicative identity by $1_{\mathbf{Z}}$. When it is clear from context, we call $0_{\mathbf{Z}}$ "zero" and we call $1_{\mathbf{Z}}$ "one".

Distributive

Proposition 3. *For integers* $x, y, z \in \mathbf{Z}$, $x \cdot (y + z) = x \cdot y + x \cdot z$.[2]

[1] Nonetheless, the full accounts will appear in future editions.

[2] An account will appear in future editions.


Integer Arithmetic
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