Definition

A number $n \in \mathbf{N}$, $n > 1$, is *composite* if there exists $m, k \in \mathbf{N}$ (not necessarily distinct) satisfying $m, k < n$ and

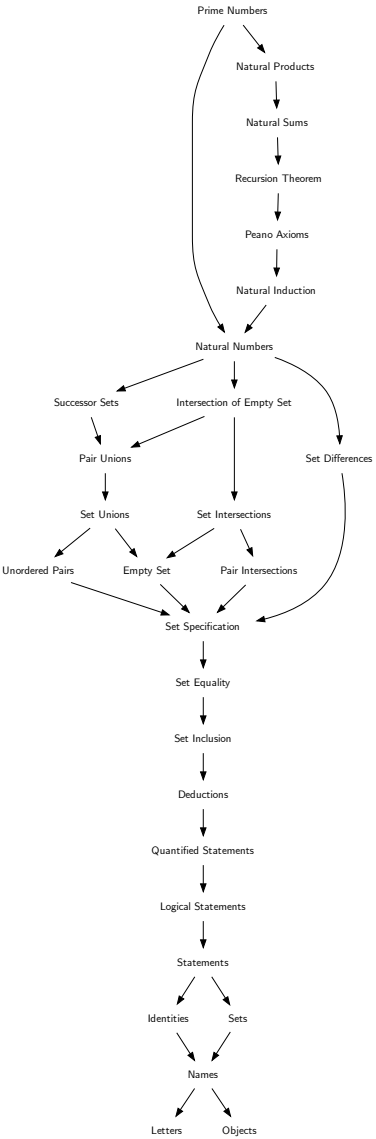
$$n = m \cdot k$$

A number which is not composite is called *prime*. Throughout this sheet, "number" is an element of $\mathbf{N}$. In other words, we exclude the natural number 0.

Examples

The first few primes. Since the only number smaller than 2 is 1 and $2 \neq 1 \cdot 1$, 2 is the first and smallest prime. Likewise, $3 \neq 1 \cdot 2$, $3 \neq 1 \cdot 1$, $3 \neq 2 \cdot 2$. So 3 is the second smallest prime.

The first composite. Now consider 4. Since $4 = 2 \cdot 2$ and $2 \leq 4$, 4 is the smallest composite number.


Prime Numbers
Natural Products
Natural Sums
Recursion Theorem
Peano Axioms
Natural Induction
Natural Numbers
Successor Sets
Intersection of Empty Set
Pair Unions
Set Differences
Set Unions
Set Intersections
Unordered Pairs
Empty Set
Pair Intersections
Set Specification
Set Equality
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Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects