Why

How does the number of elements change with unions, and products.

Results

There are a few nice relations.[1] Recall from Finite Sets that the union and product of finite sets is finite. Also, the power of a finite set is finite.

Proposition 1. *Let A and B be finite sets with $A \cap B = \varnothing$. Then $|A \cup B| = |A| + |B|$.*

Proposition 2. *Let A and B be a finite sets Then $|A \times B| = |A| \cdot |B|$.*

Proposition 3. *Let A and B be a finite sets Then $\left| A^B \right| = |A|^{|B|}$.*

Proposition 4. *Let A be a finite set. Then $|\mathcal{P}(A)| = 2^{\nu m A}$.*

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[1] Proofs will appear in future editions.

Set Numbers and Arithmetic

Set Numbers

Finite Sets

Arithmetic

Equivalent Sets

Natural Powers

Function Inverses

Natural Order

Natural Products

Function Composites

Function Images

Operations

Natural Sums

Functions

Equivalence Relations

Recursion Theorem

Relations

Peano Axioms

Set Products

Natural Induction

Ordered Pairs

Set Powers

Natural Numbers

Partitions

Unordered Triples

Intersection of Empty Set

Successor Sets

Set Intersections

Pair Unions

Set Symmetric Differences

Pair Intersections

Set Unions

Set Complements

Unordered Pairs

Empty Set

Set Differences

Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects

4