Real Plane

Why

We are constantly thinking of the $\mathbf{R}^2$ as points of a plane.[1]

Discussion

We commonly associate elements of $\mathbf{R}^2$ with points on a plane. (see Geometry).

Principle 1 (Line Sets)**.** *Given a plane, there exists a set of its (infinite) lines.*

Principle 2 (Real Plane Correspondence)**.** *Let L be the set of lines of a plane. Then $\cup L$ is the set of points of the plane. There exists a one-to-one correspondence mapping elements of $\cup L$ onto elements of $\mathbf{R}^2$.*

For this reason we sometimes call the elements of $\mathbf{R}^2$ *points*.

Visualization

[1] Future editions will modify this sheet.

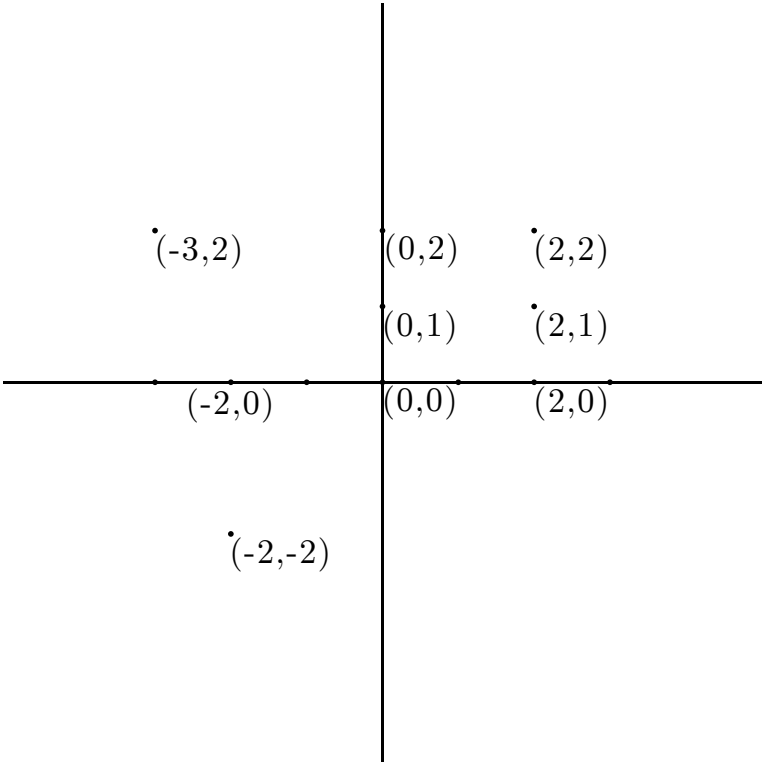
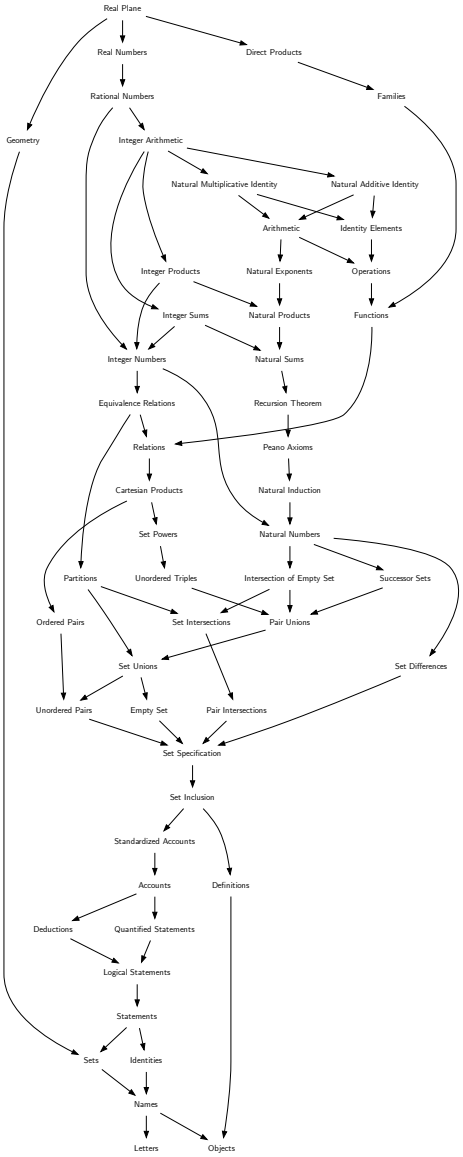


Figure 1: The real plane


Real Plane
Real Numbers
Direct Products
Rational Numbers
Families
Geometry
Integer Arithmetic
Natural Multiplicative Identity
Natural Additive Identity
Arithmetic
Identity Elements
Integer Products
Natural Exponents
Operations
Integer Sums
Natural Products
Functions
Integer Numbers
Natural Sums
Equivalence Relations
Recursion Theorem
Relations
Peano Axioms
Cartesian Products
Natural Induction
Set Powers
Natural Numbers
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Ordered Pairs
Set Intersections
Pair Unions
Set Unions
Set Differences
Unordered Pairs
Empty Set
Pair Intersections
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Definitions
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects