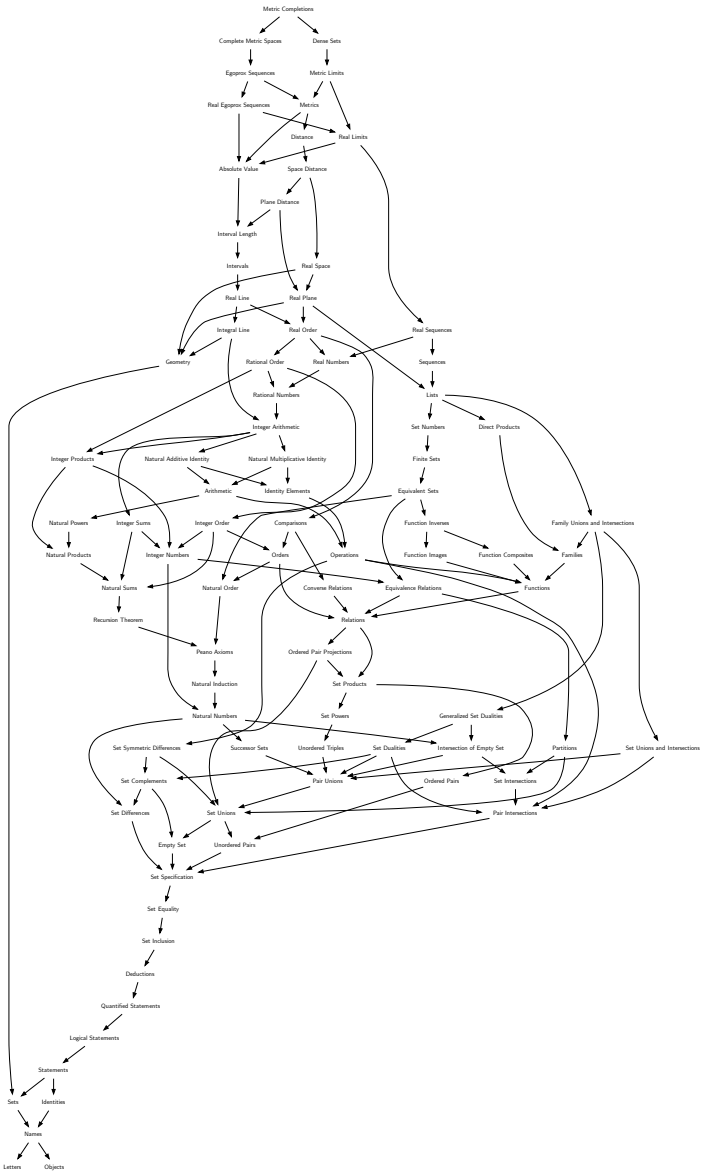
Why

We can always work with complete metric spaces.

The justification is that we can always, given an incomplete metric space, construct a larger metric space which contains a subset isomorphic to the original one.

Result

Proposition 1. *Let (A, d) be an incomplete metric space. There exists a complete metric space (B, d') with $C \subset B$ such that (A, d) and (C, d') are isometric and the image under the isometry of C is dense in B.*


Metric Completions
Complete Metric Spaces
Dense Sets
Egoprox Sequences
Metric Limits
Real Egoprox Sequences
Metrics
Distance
Real Limits
Absolute Value
Space Distance
Plane Distance
Interval Length
Intervals
Real Space
Real Line
Real Plane
Integral Line
Real Order
Real Sequences
Geometry
Rational Order
Real Numbers
Sequences
Rational Numbers
Lists
Integer Arithmetic
Set Numbers
Direct Products
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Finite Sets
Arithmetic
Identity Elements
Equivalent Sets
Natural Powers
Integer Sums
Integer Order
Comparisons
Function Inverses
Family Unions and Intersections
Natural Products
Integer Numbers
Orders
Operations
Function Images
Function Composites
Families
Natural Sums
Natural Order
Converse Relations
Equivalence Relations
Functions
Recursion Theorem
Relations
Peano Axioms
Ordered Pair Projections
Natural Induction
Set Products
Natural Numbers
Set Powers
Generalized Set Dualities
Set Symmetric Differences
Successor Sets
Unordered Triples
Set Dualities
Intersection of Empty Set
Partitions
Set Unions and Intersections
Set Complements
Pair Unions
Ordered Pairs
Set Intersections
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects