Definition

Recall that $(C, \mathbf{C}mod\cdot)$ is a normed space, and so also a metric space. So, a sequence $(z_n)_{n\in\mathbf{N}}$ of complex numbers is egoprox and convergent as usual. Both of these are equivalent to the corresponding conditions on the sequences of real and imaginary parts.

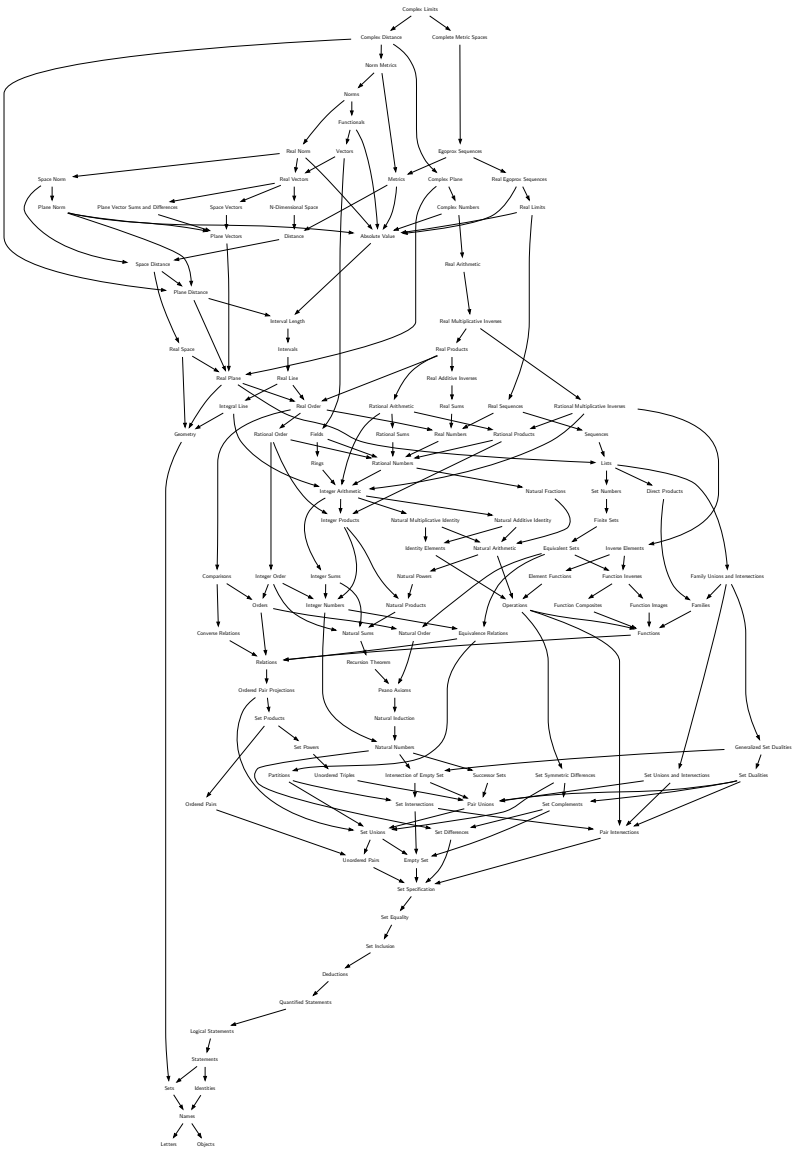
Proposition 1. *$(z_n)_{n\in\mathbf{N}} = (x_n, y_n)_{n\in\mathbf{N}}$ converges to $z_0 = (x_0, y_0) \in \mathbf{C}$ if and only if x_n converges to x_0 and y_n converges to y_0.*

Proposition 2. *$(z_n)_{n\in\mathbf{N}} = (x_n, y_n)_{n\in\mathbf{N}}$ is egoprox if and only if x_n is egoprox and y_n is egoprox.*

Completeness

As a result of the second proposition, if z_n is egoprox then there is a limit x_0 and y_0 for its real and imaginary pieces, and so as a result of the first proposition, z_n converges. In other words, every cauchy sequence converges.

Proposition 3. *$\mathbf{C}$ with the metric induced by $\mathbf{C}mod\cdot$ is complete.*


Complex Limits
Complex Distance
Complete Metric Spaces
Norm Metrics
Norms
Functionals
Real Norm
Vectors
Egoroov Sequences
Space Norm
Real Vectors
Matrices
Complex Plane
Real Egoroov Sequences
Plane Norm
Plane Vector Sums and Differences
Space Vectors
N-Dimensional Space
Complex Numbers
Real Limits
Plane Vectors
Distance
Absolute Value
Space Distance
Real Arithmetic
Plane Distance
Interval Length
Real Multiplicative Inverses
Real Space
Intervals
Real Products
Real Plane
Real Line
Real Additive Inverses
Integral Line
Real Order
Rational Arithmetic
Real Sums
Real Sequences
Rational Multiplicative Inverses
Geometry
Rational Order
Fields
Rational Sums
Real Numbers
Rational Products
Sequences
Rings
Rational Numbers
Lists
Integer Arithmetic
Natural Fractions
Set Numbers
Direct Products
Integer Products
Natural Multiplicative Identity
Natural Additive Identity
Finite Sets
Identity Elements
Natural Arithmetic
Equivalent Sets
Inverse Elements
Comparisons
Integer Order
Integer Sums
Natural Powers
Element Functions
Function Inverses
Family Unions and Intersections
Orders
Integer Numbers
Natural Products
Operations
Function Composition
Function Images
Families
Converse Relations
Natural Sums
Natural Order
Equivalence Relations
Functions
Relations
Recursion Theorem
Ordered Pair Projections
Peano Axioms
Set Products
Natural Induction
Set Powers
Natural Numbers
Generalized Set Dualities
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Set Symmetric Differences
Set Unions and Intersections
Set Dualities
Ordered Pairs
Set Intersections
Pair Unions
Set Complements
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Includes
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects