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.

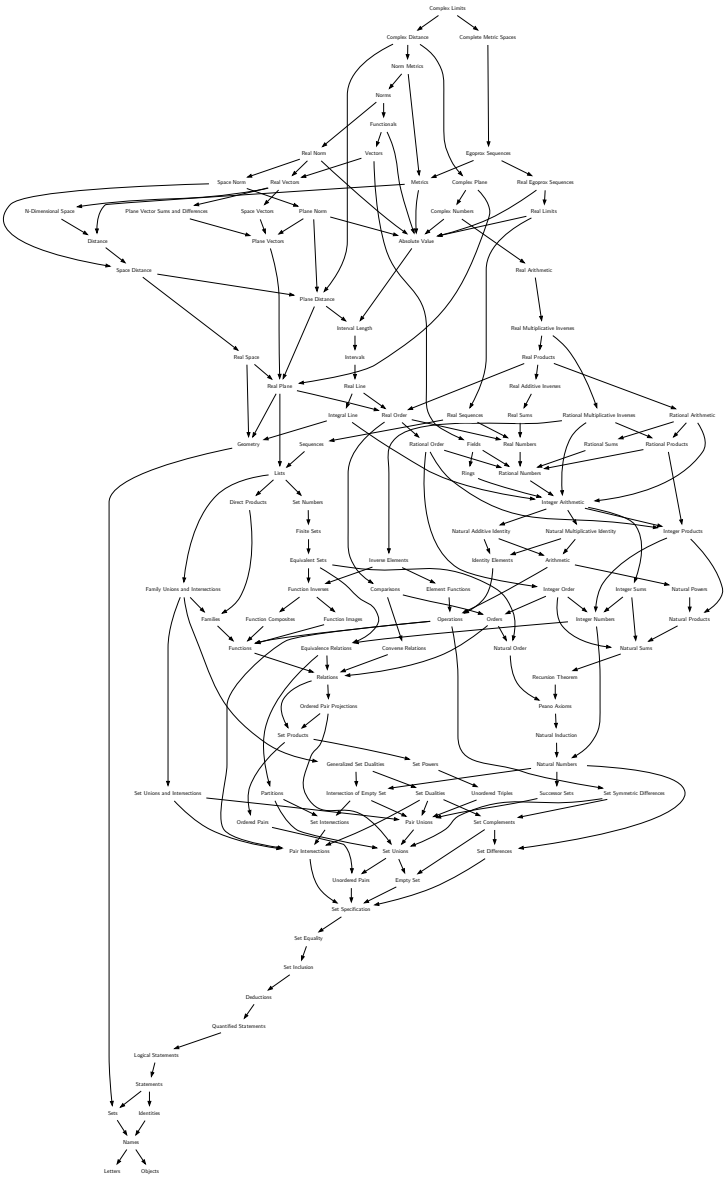
Proposition 1. *$(z_n)_{n\in\mathbf{N}} = (x_n, y_n)_{n\in\mathbf{N}}$ converges to $z_0 = (x_0, y_0) \in \mathbf{C}$ if and only if x_n converges to x_0 and y_n converges to y_0.*

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