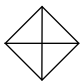


Why

[1]

Definition

Recall that $(C, |\cdot|)$ 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.*

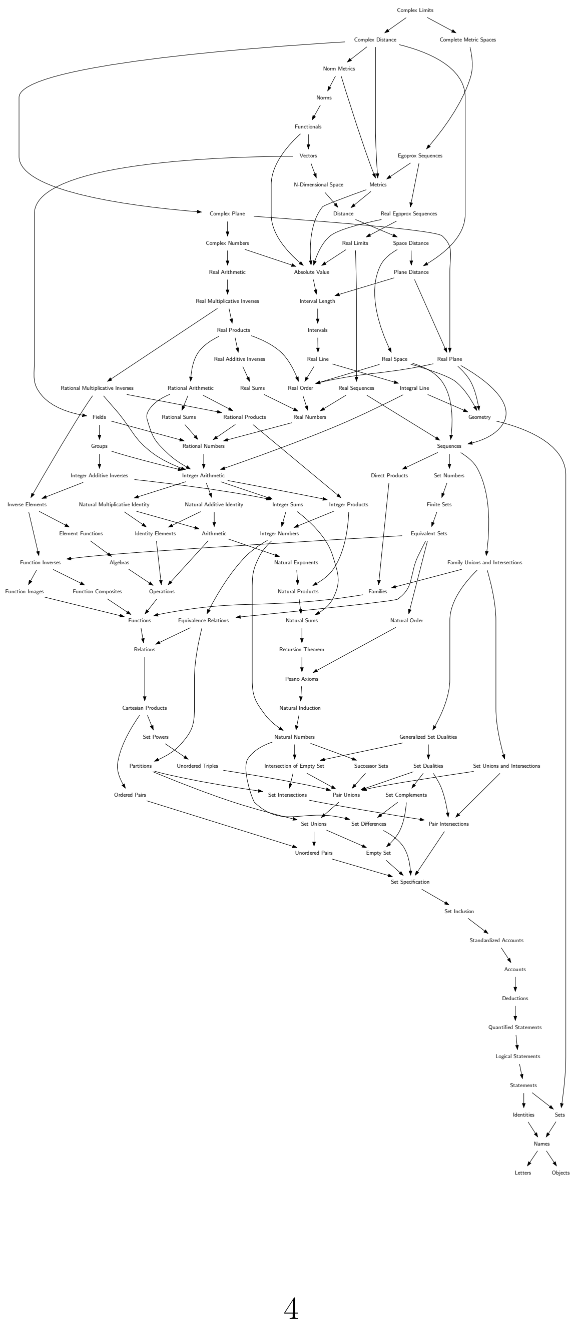
Proposition 2. *$(z_n)_{n\in\mathbf{N}} = (x_n, y_n)_{n\in\mathbf{N}}$ is egoprox if and only if x_n is egoprox and y_n is egoprox.*

Completeness

As a result of Proposition 2, 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 Proposition 2 z_n convergeces. In other words, every cauchy sequence converges.

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

[1] Future editions will include.


Complex Limits
Complex Distance
Complete Metric Spaces
Norm Metrics
Norms
Functionals
Vectors
Egoprox Sequences
N-Dimensional Space
Metrics
Complex Plane
Distance
Real Egoprox Sequences
Complex Numbers
Real Limits
Space Distance
Real Arithmetic
Absolute Value
Plane Distance
Real Multiplicative Inverses
Interval Length
Real Products
Intervals
Real Additive Inverses
Real Line
Real Space
Real Plane
Rational Multiplicative Inverses
Rational Arithmetic
Real Sums
Real Order
Real Sequences
Integral Line
Fields
Rational Sums
Rational Products
Real Numbers
Geometry
Groups
Rational Numbers
Sequences
Integer Additive Inverses
Integer Arithmetic
Direct Products
Set Numbers
Inverse Elements
Natural Multiplicative Identity
Natural Additive Identity
Integer Sums
Integer Products
Finite Sets
Element Functions
Identity Elements
Arithmetic
Integer Numbers
Equivalent Sets
Function Inverses
Algebras
Natural Exponents
Family Unions and Intersections
Function Images
Function Composites
Operations
Natural Products
Families
Functions
Equivalence Relations
Natural Sums
Natural Order
Relations
Recursion Theorem
Peano Axioms
Cartesian Products
Natural Induction
Natural Numbers
Generalized Set Dualities
Set Powers
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Set Dualities
Set Unions and Intersections
Ordered Pairs
Set Intersections
Pair Unions
Set Complements
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects