Why

Once we have a notion of distance, we can define a more general notion of convergence.

Definition

Let (X, d) be a metric space and let $(x_n)_{n \in \mathbf{N}}$ be a sequence in X. A *limit* of $(x_n)_{n \in \mathbf{N}}$ is an element $x \in X$ for which $d(x, x_n) \to 0$.

Metric Limits

Metrics

Distance

Real Limits

Space Distance

Absolute Value

Plane Distance

Interval Length

Intervals

Real Space

Real Line

Real Plane

Real Sequences

Integral Line

Real Order

Geometry

Real Numbers

Rational Order

Rational Numbers

Sequences

Integer Arithmetic

Lists

Integer Products

Natural Multiplicative Identity

Natural Additive Identity

Set Numbers

Arithmetic

Identity Elements

Finite Sets

Natural Powers

Equivalent Sets

Direct Products

Integer Sum

Natural Products

Integer Order

Comparisons

Function Inverses

Family Unions and Intersections

Natural Sums

Integer Numbers

Orders

Operations

Function Images

Function Composites

Families

Recursion Theorem

Equivalence Relations

Natural Order

Converse Relations

Functions

Peano Axioms

Relations

Natural Induction

Set Products

Natural Numbers

Set Powers

Generalized Set Dualities

Set Symmetric Difference

Partitions

Intersection of Empty Set

Successor Sets

Unordered Triples

Set Dualities

Set Unions and Intersections

Set Complements

Set Intersections

Pair Unions

Ordered Pairs

Set Differences

Set Unions

Pair Intersections

Empty Set

Unordered Pairs

Set Specification

Set Equality

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects

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