Definition

A *base* $\mathcal{B}$ for a topology $\mathcal{T}$ on a set X is a subset of $\mathcal{T}$ such that every open set $U \in \mathcal{T}$ is a union of a family of sets in $\mathcal{B}$.

Topology Bases

Topologies

Metrics

Distance

Space Distance   Absolute Value

Plane Distance

Interval Length

Real Space   Intervals

Real Plane   Real Line

Real Order   Integral Line

Geometry   Rational Order   Real Numbers

Rational Numbers

Lists   Integer Arithmetic

Set Numbers   Natural Multiplicative Identity   Natural Additive Identity   Integer Products

Finite Sets   Identity Elements   Arithmetic

Direct Products   Equivalent Sets   Natural Powers

Family Unions and Intersections   Function Inverses   Comparisons   Integer Order   Integer Sums   Natural Products

Families   Function Composites   Function Images   Operations   Orders   Integer Numbers   Natural Sums

Functions   Converse Relations   Equivalence Relations   Natural Order   Recursion Theorem

Relations   Peano Axioms

Set Products   Natural Induction

Generalized Set Dualities   Set Powers   Natural Numbers

Set Unions and Intersections   Set Dualities   Unordered Triples   Successor Sets   Intersection of Empty Set   Partitions   Set Symmetric Differences

Ordered Pairs   Pair Unions   Set Intersections   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

Names

Letters   Objects