Definition

Given nonzero $x \in \mathbf{R}^n$, the *half-line* emanating from x is the set

$$\{\lambda x \mid \lambda \geq 1\}$$

A *ray* through x or in the direction of x is the set

$$\{\lambda x \mid x \geq 0\}$$

N-Dimensional Half-Lines

N-Dimensional Lines

N-Dimensional Space

Distance

Space Distance

Plane Distance

Interval Length   Real Space

Intervals

Real Line   Real Plane

Integral Line   Real Order   Geometry

Real Numbers   Rational Order   Lists

Rational Numbers   Set Numbers   Direct Products

Integer Arithmetic   Natural Fractions   Finite Sets

Natural Multiplicative Identity   Natural Additive Identity   Integer Products   Equivalent Sets

Identity Elements   Natural Arithmetic   Function Inverses   Family Unions and Intersections

Natural Powers   Integer Sums   Integer Order   Comparisons   Function Images   Function Composites   Families

Operations   Natural Products   Integer Numbers   Orders   Functions   Natural Order

Natural Sums   Equivalence Relations   Converse Relations   Relations

Recursion Theorem   Relations

Peano Axioms   Ordered Pair Projections

Natural Induction   Set Products

Natural Numbers   Set Powers   Generalized Set Dualities

Set Symmetric Differences   Set Partitions   Successor Sets   Intersection of Empty Set   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

Deductions

Quantified Statements

Logical Statements

Statements

Identities   Sets

Names

Letters   Objects

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