Why

If we have a norm, then we have a metric.

Motivating Result

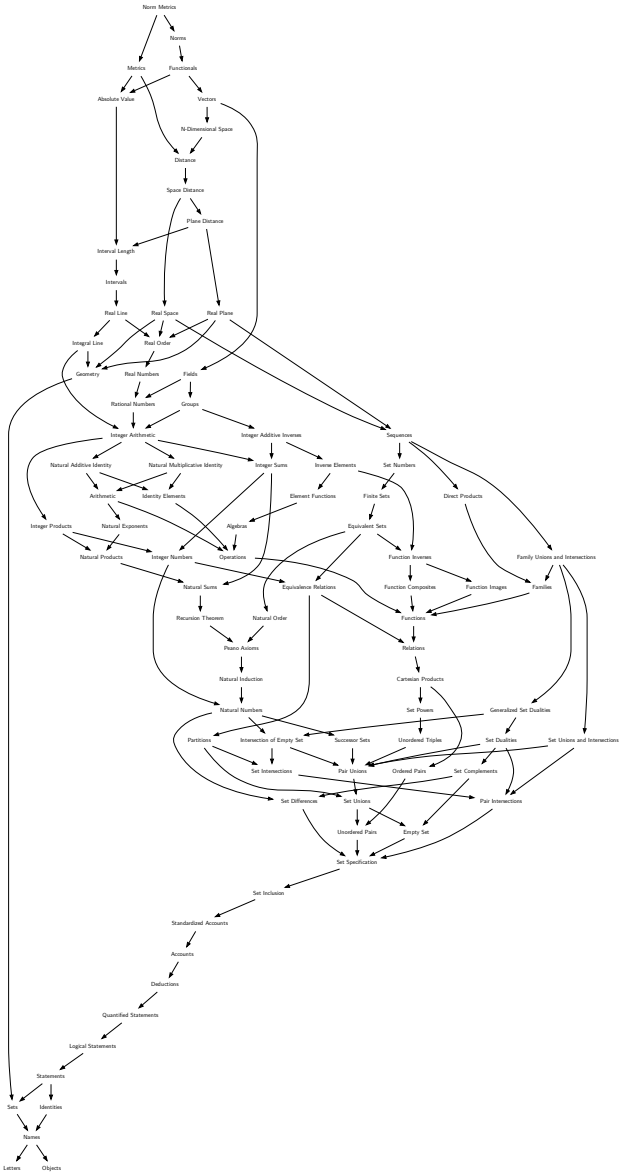
Let R be the set of real numbers.

Prop. 1. *Let (V, F) be a vector space. Let $f : V \to R$ be a norm. Let $g : V \times V \to R$ such that*

$$g(x, y) = \|x - y\|.$$

Then g is a metric.

Proof. □


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