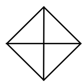


Why

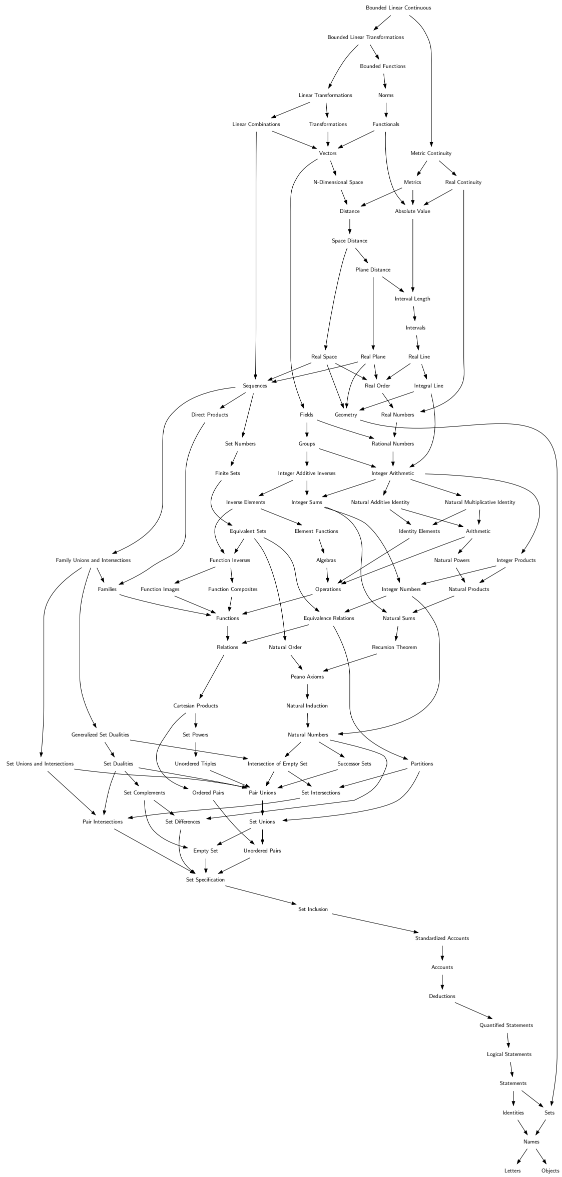
All continuous functions between norm spaces are bounded linear functions.

Result

Prop. 1. *Let* $((V_1, F), \|\cdot\|_1)$ *and Let* $((V_2, F), \|\cdot\|_2)$ *be two norm spaces. Let* $f : V_1 \to V_2$ *be a linear function between two norm spaces. Then*

1. $\exists x \in V_1$ *such that* f *is continuous at* x,
2. f *is continuous,*
3. f *is uniformly continuous, and*
4. f *is bounded,*

are all equivalent conditions.


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