Why

Main Result

Proposition **1.** *The orthogonal complement of a subspace is a subspace.*

Proposition **2.** *Let $L \subset \mathbf{R}^n$ be a subspace. Then*

$$\dim L + \dim L^{\perp} = n.$$

Proposition **3.** *Let $b_1, \ldots, b_m$ be a basis for a subspace $L \subset \mathbf{R}^n$. Then $x \perp L$ if and only if $x \perp b_i$ for $i = \{1, 2, \ldots, m\}$.*


Subspace Orthogonal Complements
Orthogonal Complements
Subspace Dimensions
Vector Space Dimensions
Inner Products
Vector Space Bases
Span
Linearly Dependent Vectors
Subspaces
Linear Combinations
Vectors
Numberings
N-Dimensional Space
Fields
Finite Sets
Space
Real Numbers
Groups
Equivalent Sets
Rational Numbers
Algebras
Function Inverses
Integer Numbers
Operations
Function Composites
Injective Functions
Surjective Functions
Equivalence Relations
Functions
Zero
Relations
Equation Solutions
Natural Numbers
Ordered Pairs
Set Intersections
Set Unions
Empty Set
Unordered Pairs
Equations
Set Specification
Set Inclusion
Set Equality
Sentences
Identity
Sets
Objects