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Nota di contenuto	1 Sets and Functions -- 1.1 Notation and Terminology -- 1.2 Composition of Functions -- 1.3 Inverse Functions -- 1.4 Digression on Cardinality -- 1.5 Permutations -- Exercises -- 2 Groups and Group Homomorphisms -- 2.1 Groups and Subgroups -- 2.2 Group Homomorphisms -- 2.3 Rings and Fields -- Exercises -- 3 Vector Spaces and Linear Transformations -- 3.1 Vector Spaces and Subspaces -- 3.2 Linear Transformations -- 3.3 Direct Products and Internal Direct Sums -- Exercises -- 4 Dimension -- 4.1 Bases and Dimension -- 4.2 Vector Spaces Are Free -- 4.3 Rank and Nullity -- Exercises -- 5 Matrices -- 5.1 Notation and Terminology -- 5.2 Introduction to Linear Systems -- 5.3 Solution Techniques -- 5.4 Multiple Systems and Matrix Inversion -- Exercises -- 6 Representation of Linear Transformations -- 6.1 The Space of Linear Transformations -- 6.2 The Representation of Hom(kn,km) -- 6.3 The Representation of Hom(V,V') -- 6.4 The Dual Space -- 6.5 Change of Basis -- Exercises -- 7 Inner Product Spaces -- 7.1 Real Inner Product Spaces -- 7.2 Orthogonal Bases and Orthogonal Projection -- 7.3 Complex Inner Product Spaces -- Exercises -- 8 Determinants -- 8.1 Existence and Basic Properties -- 8.2 A Nonrecursive Formula; Uniqueness -- 8.3 The Determinant of a Product; Invertibility -- Exercises -- 9 Eigenvalues and Eigenvectors -- 9.1 Definitions and Elementary Properties -- 9.2 Hermitian and Unitary Transformations -- 9.3 Spectral Decomposition -- Exercises -- 10

	Triangulation and Decomposition of Endomorphisms -- 10.1 The Cayley-Hamilton Theorem -- 10.2 Triangulation of Endomorphisms -- 10.3 Decomposition by Characteristic Subspaces -- 10.4 Nilpotent Mappings and the Jordan Normal Form -- Exercises -- Supplementary Topics -- 1 Differentiation -- 2 The Determinant Revisited -- 3 Quadratic Forms -- 4 An Introduction to Categories and Functors.
Sommario/riassunto	Based on lectures given at Claremont McKenna College, this text constitutes a substantial, abstract introduction to linear algebra. The presentation emphasizes the structural elements over the computational - for example by connecting matrices to linear transformations from the outset - and prepares the student for further study of abstract mathematics. Uniquely among algebra texts at this level, it introduces group theory early in the discussion, as an example of the rigorous development of informal axiomatic systems.