

1. Record Nr.	UNINA9910830132703321
Autore	Gilbert William J. <1941->
Titolo	Modern algebra with applications [[electronic resource] /] / William J. Gilbert, W. Keith Nicholson
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2004
ISBN	1-280-34418-0 9786610344185 0-470-31340-4 0-471-46989-0 0-471-46988-2
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (353 p.)
Collana	Pure and applied mathematics
Altri autori (Persone)	NicholsonW. Keith
Disciplina	512
Soggetti	Algebra, Abstract
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 306-308) and index.
Nota di contenuto	MODERN ALGEBRA WITH APPLICATIONS; CONTENTS; Preface to the First Edition; Preface to the Second Edition; List of Symbols; 1 Introduction; Classical Algebra; Modern Algebra; Binary Operations; Algebraic Structures; Extending Number Systems; 2 Boolean Algebras; Algebra of Sets; Number of Elements in a Set; Boolean Algebras; Propositional Logic; Switching Circuits; Divisors; Posets and Lattices; Normal Forms and Simplification of Circuits; Transistor Gates; Representation Theorem; Exercises; 3 Groups; Groups and Symmetries; Subgroups; Cyclic Groups and Dihedral Groups; Morphisms Permutation Groups Even and Odd Permutations; Cayley's Representation Theorem; Exercises; 4 Quotient Groups; Equivalence Relations; Cosets and Lagrange's Theorem; Normal Subgroups and Quotient Groups; Morphism Theorem; Direct Products; Groups of Low Order; Action of a Group on a Set; Exercises; 5 Symmetry Groups in Three Dimensions; Translations and the Euclidean Group; Matrix Groups; Finite Groups in Two Dimensions; Proper Rotations of Regular Solids; Finite Rotation Groups in Three Dimensions; Crystallographic Groups; Exercises; 6 Polya-Burnside Method of Enumeration; Burnside's Theorem

Necklace Problems Coloring Polyhedra; Counting Switching Circuits; Exercises; 7 Monoids and Machines; Monoids and Semigroups; Finite-State Machines; Quotient Monoids and the Monoid of a Machine; Exercises; 8 Rings and Fields; Rings; Integral Domains and Fields; Subrings and Morphisms of Rings; New Rings from Old; Field of Fractions; Convolution Fractions; Exercises; 9 Polynomial and Euclidean Rings; Euclidean Rings; Euclidean Algorithm; Unique Factorization; Factoring Real and Complex Polynomials; Factoring Rational and Integral Polynomials; Factoring Polynomials over Finite Fields Linear Congruences and the Chinese Remainder Theorem Exercises; 10 Quotient Rings; Ideals and Quotient Rings; Computations in Quotient Rings; Morphism Theorem; Quotient Polynomial Rings That Are Fields; Exercises; 11 Field Extensions; Field Extensions; Algebraic Numbers; Galois Fields; Primitive Elements; Exercises; 12 Latin Squares; Latin Squares; Orthogonal Latin Squares; Finite Geometries; Magic Squares; Exercises; 13 Geometrical Constructions; Constructible Numbers; Duplicating a Cube; Trisecting an Angle; Squaring the Circle; Constructing Regular Polygons Nonconstructible Number of Degree 4 Exercises; 14 Error-Correcting Codes; The Coding Problem; Simple Codes; Polynomial Representation; Matrix Representation; Error Correcting and Decoding; BCH Codes; Exercises; Appendix 1: Proofs; Appendix 2: Integers; Bibliography and References; Answers to Odd-Numbered Exercises; Index

Sommario/riassunto

Praise for the first edition "This book is clearly written and presents a large number of examples illustrating the theory . . . there is no other book of comparable content available. Because of its detailed coverage of applications generally neglected in the literature, it is a desirable if not essential addition to undergraduate mathematics and computer science libraries."-CHOICE As a cornerstone of mathematical science, the importance of modern algebra and discrete structures to many areas of science and technology is apparent and growing-with extensive use in computing science,
