

1. Record Nr.	UNINA9910463750703321
Autore	Conradie Willem <1978->
Titolo	Logic and discrete mathematics : a concise introduction, solutions manual // Willem Conradie, Valentin Goranko, Claudette Robinson
Pubbl/distr/stampa	West Sussex, England : , : Wiley, , 2015 ©2015
ISBN	1-119-00010-6
Descrizione fisica	1 online resource (392 p.)
Disciplina	004/.01/51
Soggetti	Logic, Symbolic and mathematical Computer science - Mathematics Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Cover; Table of Contents; Title Page; Copyright; Preface; About the Companion Website; Chapter 1: Preliminaries; 1.1 Sets; 1.2 Basics of Logical Connectives and Expressions; 1.3 Mathematical Induction; Chapter 2: Sets, Relations, Orders; 2.1 Set Inclusions and Equalities; 2.2 Functions; 2.3 Binary Relations and Operations on Them; 2.4 Special Binary Relations; 2.5 Equivalence Relations and Partitions; 2.6 Ordered Sets; 2.7 An Introduction to Cardinality; 2.8 Isomorphisms of Ordered Sets. Ordinal Numbers; 2.9 Application: relational databases; Chapter 3: Propositional Logic 3.1 Propositions, Logical Connectives, Truth Tables, Tautologies 3.2 Propositional Logical Consequence. Valid and Invalid Propositional Inferences; 3.3 Semantic Tableaux; 3.4 Logical Equivalences. Negating Propositional Formulae; 3.5 Normal forms. Propositional Resolution; Chapter 4: First-Order Logic; 4.1 Basic Concepts of First-Order Logic; 4.2 The Formal Semantics of First-Order Logic; 4.3 The Language of First-Order Logic: A Deeper Look; 4.4 Truth, Logical Validity, Equivalence and Consequence in First-Order Logic; 4.5 Semantic Tableaux for First-Order Logic 4.6 Prenex and Clausal Normal Forms 4.7 Resolution in First-Order Logic; 4.8 Applications of First-Order Logic to Mathematical Reasoning and Proofs; Chapter 5: Number Theory; 5.1 The Principle of

Mathematical Induction revisited; 5.2 Divisibility; 5.3 Computing Greatest Common Divisors. Least Common Multiples; 5.4 Prime Numbers. The Fundamental Theorem of Arithmetic; 5.5 Congruence Relations; 5.6 Equivalence Classes and Residue Systems Modulo n ; 5.7 Linear Diophantine Equations and Linear Congruences; 5.8 Chinese Remainder Theorem; 5.9 Euler's Function. Theorems of Euler and Fermat

5.10 Wilson's Theorem. Order of an Integer 5.11 Application: Public Key Cryptography; Chapter 6: Combinatorics; 6.1 Two Basic Counting Principles; 6.2 Combinations. The Binomial Theorem; 6.3 The Principle of Inclusion - Exclusion; 6.4 The Pigeonhole Principle; 6.5 Generalized Permutations, Distributions and the Multinomial Theorem; 6.6 Selections and Arrangements with Repetition; Distributions of Identical Objects; 6.7 Recurrence Relations and Their Solution; 6.8 Generating Functions; 6.9 Recurrence Relations and Generating Functions; 6.10 Application: Classical Discrete Probability

Chapter 7: Graph Theory 7.1 Introduction to Graphs and Digraphs; 7.2 Incidence and Adjacency Matrices; 7.3 Weighted Graphs and Path Algorithms; 7.4 Trees; 7.5 Eulerian Graphs and Hamiltonian Graphs; 7.6 Planar Graphs; 7.7 Graph Colourings; End User License Agreement

Sommario/riassunto

Solutions manual to accompany Logic and Discrete Mathematics: A Concise Introduction This book features a unique combination of comprehensive coverage of logic with a solid exposition of the most important fields of discrete mathematics, presenting material that has been tested and refined by the authors in university courses taught over more than a decade. Written in a clear and reader-friendly style, each section ends with an extensive set of exercises, most of them provided with complete solutions which are available in this accompanying solutions manual.
