

Discrete Mathematical Structures 6th Edition

Description: This book is intended to be a textbook for the student pursuing B.E.B.Tech in Computer Science or MCAM Tech and NIELIT - B & C Level or equivalent courses. Topics included are self contained. Sequence is maintained in such a way that no prerequisite is necessary. This book contains topics ranging from set, relation, recurrence relation, generating function, posets, lattice, methods of proofs, Quine McCluskey Method, Floyd Warshall's algorithm, finite automata, bipartite graph etc. Only necessary theorems have been included, and wherever required, their applicability has been demonstrated using appropriate examples. Whenever required, a diagram is used to make the concept easily understood to the reader. It contains good number of solved examples and exercises for hands on practice. Table of Contents: Chapter 1 : Set Chapter 2 : Relation Chapter 3 : Number Theory Chapter 4 : Function Chapter 5 : Predicate Calculus Chapter 6 : Poset Chapter 7 : Lattice Chapter 8 : Finite Boolean Algebra Chapter 9 : Recursive Equations Chapter 10 : Generating Functions Chapter 11 : Method Of Proofs Chapter 12 : Permutations Chapter 13 : Combinations Chapter 14 : Group Chapter 15 : Cyclic Group Chapter 16 : Permutation Chapter 17 : Matrix Chapter 18 : Graph Chapter 19 : Path and Circuit Chapter 20 : Graph Algorithms Chapter 21 : Formal Language Chapter 22 : Finite Automata Chapter 23 : Galois Field

This book is meant to be more than just a text in discrete mathematics. It is a forerunner of another book Applied Discrete Structures by the same author. The ultimate goal of the two books are to make a strong case for the inclusion of discrete mathematics in the undergraduate curricula of mathematics by creating a sequence of courses in discrete mathematics parallel to the traditional sequence of calculus-based courses. The present book covers the foundations of discrete mathematics in seven chapters. It lays a heavy emphasis on motivation and attempts clarity without sacrificing rigour. A list of typical problems is given in the first chapter. These problems are used throughout the book to motivate various concepts. A review of logic is included to gear the reader into a proper frame of mind. The basic counting techniques are covered in chapters 2 and 7. Those in chapter 2 are elementary. But they are intentionally covered in a formal manner so as to acquaint the reader with the traditional definition-theorem-proof pattern of mathematics. Chapter 3 introduces abstraction and shows how the focal point of today's mathematics is not numbers but sets carrying suitable structures. Chapter 4 deals with Boolean algebras and their applications. Chapters 5 and 6 deal with more traditional topics in algebra, viz., groups, rings, fields, vector spaces and matrices. The presentation is elementary and presupposes no mathematical maturity on the part of the reader. Instead, comments are inserted liberally to increase his maturity. Each chapter has four sections. Each section is followed by exercises (of various degrees of difficulty) and by notes and guide to literature. Answers to the exercises are provided at the end of the book.

While many think of algorithms as specific to computer science, at its core algorithmic thinking is defined by the use of analytical logic to solve problems. This logic extends far beyond the realm of computer science and into the wide and entertaining world of puzzles. In Algorithmic Puzzles, Anany and Maria Levitin use many classic brainteasers as well as newer examples from job interviews with major corporations to show readers how to apply analytical thinking to solve puzzles requiring well-defined procedures. The book's unique collection of puzzles is supplemented with carefully developed tutorials on algorithm design strategies and analysis techniques intended to walk the reader step-by-step through the various approaches to algorithmic problem solving. Mastery of these strategies--exhaustive search, backtracking, and divide-and-conquer, among others--will aid the reader in solving not only the puzzles contained in this book, but also others encountered in interviews, puzzle collections, and throughout everyday life. Each of the 150 puzzles contains hints and solutions, along with commentary on the puzzle's origins and solution methods. The only book of its kind, Algorithmic Puzzles houses puzzles for all skill levels. Readers with only middle school mathematics will develop their algorithmic problem-solving skills through puzzles at the elementary level, while seasoned puzzle solvers will enjoy the challenge of thinking through more difficult puzzles.

Taking an approach to the subject that is suitable for a broad readership, Discrete Mathematics: Proofs, Structures, and Applications, Third Edition provides a rigorous yet accessible exposition of discrete mathematics, including the core mathematical foundation of computer science. The approach is comprehensive yet maintains an easy-to-follow progression from the basic mathematical ideas to the more sophisticated concepts examined later in the book. This edition preserves the philosophy of its predecessors while updating and revising some of the content. New to the Third Edition In the expanded first chapter, the text includes a new section on the formal proof of the validity of arguments in propositional logic before moving on to predicate logic. This edition also contains a new chapter on elementary number theory and congruences. This chapter explores groups that arise in modular arithmetic and RSA encryption, a widely used public key encryption scheme that enables practical and secure means of encrypting data. This third edition also offers a detailed solutions manual for qualifying instructors. Exploring the relationship between mathematics and computer science, this text continues to provide a secure grounding in the theory of discrete mathematics and to augment the theoretical foundation with salient applications. It is designed to help readers develop the rigorous logical thinking required to adapt to the demands of the ever-evolving discipline of computer science.

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The Fifth Edition Of The Book 'Discrete Mathematics And Structures' Is An Outcome Of Author'S Continuous Discussions With His Colleagues And Students. Unlike Other Books, This Book Helps The Readers To Develop Mathematical Maturity And Understand The Basic Concepts Of Discrete Mathematics And Structures. Extensive In Its Coverage, Each New Concept Is Gently Introduced And Then Reinforced By A Lot Of Solved Examples. Questions From Various Examinations Have Been Incorporated To Enable The Students To Understand The Latest Trends In Paper-Setting.

This volume contains the proceedings of the AMS Special Session on Algebraic and Geometric Methods in Applied Discrete Mathematics, held on January 11, 2015, in San Antonio, Texas. The papers present connections between techniques from "pure" mathematics and various applications amenable to the analysis of discrete models, encompassing applications of combinatorics, topology, algebra, geometry, optimization, and representation theory. Papers not only present novel results, but also survey the current state of knowledge of important topics in applied discrete mathematics. Particular highlights include: a new computational framework, based on geometric combinatorics, for structure prediction from RNA sequences; a new method for approximating the optimal solution of a sum of squares problem; a survey of recent Helly-type geometric theorems; applications of representation theory to voting theory and game theory; a study of fixed points of tensors; and exponential random graph models from the perspective of algebraic statistics with applications to networks. This volume was written for those trained in areas such as algebra, topology, geometry, and combinatorics who are interested in tackling problems in fields such as biology, the social sciences, data analysis, and optimization. It may be useful not only for experts, but also for students who wish to gain an applied or interdisciplinary perspective.

This is a comprehensive text book covering various aspects of Discrete Mathematics. It suits the needs of the students of B.E./B.Tech., M.E., M.Sc. (Computer Science) and MCA Building off the success of Zill and Dewar's popular Essentials version, the new Sixth Edition of Precalculus with Calculus Previews continues to include all of the outstanding features and learning tools found

Essentials of Precalculus with Calculus Previews, Sixth Edition is an ideal undergraduate text to help students successfully transition into a future course in calculus. The Sixth Edition of this best-selling text presents the fundamental mathematics used in a typical calculus sequence in a focused and readable format. Dennis G. Zill's concise, yet eloquent, writing style allows instructors to cover the entire text in one semester. Essentials of Precalculus with Calculus Previews, Sixth Edition uses a vibrant full-color design to illuminate key concepts and improves students' comprehension of graphs and figures. This text also includes a valuable collection of student and instructor resources, making it a complete teaching and learning package. Key Updates to the Sixth Edition: • New section on implicitly defined functions in Chapter 2 • New section on the Product-to-Sum and Sum-to-Product trigonometric identities in Chapter 4 • Expanded discussion of applications of right triangles, including the addition of new problems designed to pique student interest • The discussion of the Laws of Sines and the Law of Cosines are now separated into two sections to facilitate and increase student comprehension • Increased emphasis on solving equations involving exponential and logarithmic functions • Updated and expanded WebAssign Online Homework and Grading System with comprehensive questions that facilitate learning • Provides a complete teaching and learning program with numerous student and instructor resources, including a Student Resource Manual, WebAssign, Complete Instructor Solutions Manual, and Image Bank

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Includes Access to Student Companion Website! Exploring Mathematics: Investigations with Functions is designed for one- or two- term mathematics courses for humanities and liberal arts majors. This unique ten-chapter text covers modern applications of mathematics in the liberal arts and situates the discipline within its rich and varied history. Exploring Mathematics draws on examples from the humanities, including how math is used in music and astronomy, and features perforated pages for easy study and review. The student-friendly writing style and informal approach demystifies the subject matter and offers an engaging and informative overview that will pique students curiosity and desire to explore mathematics further. Organized around the use of algebraic functions, this text builds conceptual bridges between each chapter so that students develop advanced mathematical skills within a larger context. Unlike other texts that present mathematical topics as a disconnected set of rules and equations, Exploring Mathematics flows seamlessly from one subject to the next, situating each within its historical and cultural context. This text provides a unique opportunity to showcase the richness of mathematics as a foundation upon which to build understanding of many different phenomena. Students will come away with a solid knowledge base of the unifying ideas of mathematics and the ability to explain how mathematics helps us to better our society and understand the world around us. The Text's Objectives: The author chose the topics based on meeting the specific NCTM curriculum standards to: 1.

Strengthen estimation and computational skills. 2. Utilize algebraic concepts. 3. Emphasize problem-solving and reasoning. 4. Emphasize pattern and relationship recognition. 5. Highlight importance of units in measurement. 6. Highlight importance of the notion of a mathematical function. 7. Display mathematical connections to other disciplines. Key Features: A full color, interactive design provides students with a safe environment to graph solutions, check off chapter objectives, and answer questions directly in their textbook Piques student interest in math by relating it to areas such as astronomy and music, found in Chapter 4, Astronomy and the Methods of Science and Chapter 9, Mathematics in Music and Cryptology Utilizes the concept of a function as a central theme, providing a common thread through chapters Presents an engaging, student-friendly style with problem sets that incorporate real-world applications and data An abundance of examples illustrating important applications are presented in each section, while four-color pictures and diagrams reinforce key concepts and increase student comprehension Every new, printed copy includes access to a student companion website, featuring a lab manual and student solutions manual"

Now with solutions to selected problems, Applied Combinatorics, Second Edition presents the tools of combinatorics from an applied point of view. This bestselling textbook offers numerous references to the literature of combinatorics and its applications that enable readers to delve more deeply into the topics. After introducing fundamental counting

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Discrete Mathematical Structures, Sixth Edition, offers a clear and concise presentation of the fundamental concepts of discrete mathematics. Ideal for a one-semester introductory course, this text contains more genuine computer science applications than any other text in the field. This book is written at an appropriate level for a wide variety of majors and non-majors, and assumes a college algebra course as a prerequisite.

Did you know that games and puzzles have given birth to many of today's deepest mathematical subjects? Now, with Douglas Ensley and Winston Crawley's Introduction to Discrete Mathematics, you can explore mathematical writing, abstract structures, counting, discrete probability, and graph theory, through games, puzzles, patterns, magic tricks, and real-world problems. You will discover how new mathematical topics can be applied to everyday situations, learn how to work with proofs, and develop your problem-solving skills along the way. Online applications help improve your mathematical reasoning. Highly intriguing, interactive Flash-based applications illustrate key mathematical concepts and help you develop your ability to reason mathematically, solve problems, and work with proofs.

Explore More icons in the text direct you to online activities at www.wiley.com/college/ensley. Improve your grade with the Student Solutions Manual. A supplementary Student Solutions Manual contains more detailed solutions to selected exercises in the text.

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