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Mathematical Statistics with Applications in R - Kandethody M. Ramachandran 2014-09-14

Mathematical Statistics with Applications in R, Second Edition, offers a modern calculus-based theoretical introduction to mathematical statistics and applications. The book covers many modern statistical computational and simulation concepts that are not covered in other texts, such as the Jackknife, bootstrap methods, the EM algorithms, and Markov chain Monte Carlo (MCMC) methods such as the Metropolis algorithm, Metropolis-Hastings algorithm and the Gibbs sampler. By combining the discussion on the theory of statistics with a wealth of real-world applications, the book helps students to approach statistical problem solving in a logical manner. This book provides a step-by-step procedure to solve real problems, making the topic more accessible. It includes goodness of fit methods to identify the probability distribution that characterizes the probabilistic behavior or a given set of data. Exercises as well as practical, real-world chapter projects are included, and each chapter has an optional section on using Minitab, SPSS and SAS commands. The text also boasts a wide array of coverage of ANOVA, nonparametric, MCMC, Bayesian and empirical methods; solutions to selected problems; data sets; and an image bank for students. Advanced undergraduate and graduate students taking a one or two semester mathematical statistics course will find this book extremely useful in their studies. Step-by-step procedure to solve real problems, making the topic more accessible Exercises blend theory and modern applications Practical, real-world chapter projects Provides an optional section in each chapter on using Minitab, SPSS and SAS commands Wide array of coverage of ANOVA, Nonparametric, MCMC, Bayesian and empirical methods

Orbital Mechanics for Engineering Students - Howard D Curtis 2009-10-26

Orbital Mechanics for Engineering Students, Second Edition, provides an introduction to the basic concepts of space mechanics. These include vector kinematics in three dimensions; Newton's laws of motion and gravitation; relative motion; the vector-based solution of the classical two-body problem; derivation of Kepler's equations; orbits in three dimensions; preliminary orbit determination; and orbital maneuvers. The book also covers relative motion and the two-impulse rendezvous problem; interplanetary mission design using patched conics; rigid-body dynamics used to characterize the attitude of a space vehicle; satellite attitude dynamics; and the characteristics and design of multi-stage launch vehicles. Each chapter begins with an outline of key concepts and concludes with problems that are based on the material covered. This text is written for undergraduates who are studying orbital mechanics for the first time and have completed courses in physics, dynamics, and mathematics, including differential equations and applied linear algebra. Graduate students, researchers, and experienced practitioners will also find useful review materials in the book. NEW: Reorganized and improved discussions of coordinate systems, new discussion on perturbations and quaternions NEW: Increased coverage of attitude dynamics, including new Matlab algorithms and examples in chapter 10 New examples and homework problems

A Romanian Problem Book - Titu Andreescu 2020-03-30

Digital Terrain Modeling - Zhilin Li 2004-11-29

Written by experts, Digital Terrain Modeling: Principles and Methodology provides comprehensive coverage of recent developments in the field. The topics include terrain analysis, sampling strategy, acquisition methodology, surface modeling principles, triangulation algorithms, interpolation techniques,

on-line and off-line quality control in data a

A First Course in Probability - Sheldon M. Ross 2002

This market-leading introduction to probability features exceptionally clear explanations of the mathematics of probability theory and explores its many diverse applications through numerous interesting and motivational examples. The outstanding problem sets are a hallmark feature of this book. Provides clear, complete explanations to fully explain mathematical concepts. Features subsections on the probabilistic method and the maximum-minimums identity. Includes many new examples relating to DNA matching, utility, finance, and applications of the probabilistic method. Features an intuitive treatment of probability—intuitive explanations follow many examples. The Probability Models Disk included with each copy of the book, contains six probability models that are referenced in the book and allow readers to quickly and easily perform calculations and simulations.

Computational Complexity - Sanjeev Arora 2009-04-20

New and classical results in computational complexity, including interactive proofs, PCP, derandomization, and quantum computation. Ideal for graduate students.

Alex's Adventures in Numberland - Alex Bellos 2011-04-04

The world of maths can seem mind-boggling, irrelevant and, let's face it, boring. This groundbreaking book reclaims maths from the geeks. Mathematical ideas underpin just about everything in our lives: from the surprising geometry of the 50p piece to how probability can help you win in any casino. In search of weird and wonderful mathematical phenomena, Alex Bellos travels across the globe and meets the world's fastest mental calculators in Germany and a startlingly numerate chimpanzee in Japan. Packed with fascinating, eye-opening anecdotes, Alex's Adventures in Numberland is an exhilarating cocktail of history, reportage and mathematical proofs that will leave you awestruck.

Real Analysis (Classic Version) - Halsey Royden 2017-02-13

Originally published in 2010, reissued as part of Pearson's modern classic series.

Solving ODEs with MATLAB - Lawrence F. Shampine 2003-04-28

This concise text, first published in 2003, is for a one-semester course for upper-level undergraduates and beginning graduate students in engineering, science, and mathematics, and can also serve as a quick reference for professionals. The major topics in ordinary differential equations, initial value problems, boundary value problems, and delay differential equations, are usually taught in three separate semester-long courses. This single book provides a sound treatment of all three in fewer than 300 pages. Each chapter begins with a discussion of the 'facts of life' for the problem, mainly by means of examples. Numerical methods for the problem are then developed, but only those methods most widely used. The treatment of each method is brief and technical issues are minimized, but all the issues important in practice and for understanding the codes are discussed. The last part of each chapter is a tutorial that shows how to solve problems by means of small, but realistic, examples.

National Curriculum Maths Practice Book for Year 5 - Scholastic 2014-07-10

This book can help your child by providing a whole year of ready to go activities and support on key Mathematics topics which will be being taught in school from 2014. Did you know that children in Year 5 now need to; know and use prime numbers, prime factors and composite numbers; know all tables facts up

to 12 x 12; understand and use equivalences between metric and imperial units such as inches, pounds and pints? * Workbooks for home learning * Linked directly to what your children will be learning in school * A linked website provides additional activities, answers and support for parents * Developed by teachers to ensure the best possible support for the new 2014 National Curriculum.

Introduction to Probability Models - Sheldon M. Ross 2006-12-11

Introduction to Probability Models, Tenth Edition, provides an introduction to elementary probability theory and stochastic processes. There are two approaches to the study of probability theory. One is heuristic and nonrigorous, and attempts to develop in students an intuitive feel for the subject that enables him or her to think probabilistically. The other approach attempts a rigorous development of probability by using the tools of measure theory. The first approach is employed in this text. The book begins by introducing basic concepts of probability theory, such as the random variable, conditional probability, and conditional expectation. This is followed by discussions of stochastic processes, including Markov chains and Poisson processes. The remaining chapters cover queuing, reliability theory, Brownian motion, and simulation. Many examples are worked out throughout the text, along with exercises to be solved by students. This book will be particularly useful to those interested in learning how probability theory can be applied to the study of phenomena in fields such as engineering, computer science, management science, the physical and social sciences, and operations research. Ideally, this text would be used in a one-year course in probability models, or a one-semester course in introductory probability theory or a course in elementary stochastic processes. New to this Edition: 65% new chapter material including coverage of finite capacity queues, insurance risk models and Markov chains Contains compulsory material for new Exam 3 of the Society of Actuaries containing several sections in the new exams Updated data, and a list of commonly used notations and equations, a robust ancillary package, including a ISM, SSM, and test bank Includes SPSS PASW Modeler and SAS JMP software packages which are widely used in the field Hallmark features: Superior writing style Excellent exercises and examples covering the wide breadth of coverage of probability topics Real-world applications in engineering, science, business and economics

Statistical Power Analysis for the Behavioral Sciences - Jacob Cohen 2013-05-13

Statistical Power Analysis is a nontechnical guide to power analysis in research planning that provides users of applied statistics with the tools they need for more effective analysis. The Second Edition includes: * a chapter covering power analysis in set correlation and multivariate methods; * a chapter considering effect size, psychometric reliability, and the efficacy of "qualifying" dependent variables and; * expanded power and sample size tables for multiple regression/correlation.

Mining of Massive Datasets - Jure Leskovec 2014-11-13

Now in its second edition, this book focuses on practical algorithms for mining data from even the largest datasets.

Mathematics and Statistics for Financial Risk Management - Michael B. Miller 2013-12-31

Mathematics and Statistics for Financial Risk Management is a practical guide to modern financial risk management for both practitioners and academics. Now in its second edition with more topics, more sample problems and more real world examples, this popular guide to financial risk management introduces readers to practical quantitative techniques for analyzing and managing financial risk. In a concise and easy-to-read style, each chapter introduces a different topic in mathematics or statistics. As different techniques are introduced, sample problems and application sections demonstrate how these techniques can be applied to actual risk management problems. Exercises at the end of each chapter and the accompanying solutions at the end of the book allow readers to practice the techniques they are learning and monitor their progress. A companion Web site includes interactive Excel spreadsheet examples and templates. Mathematics and Statistics for Financial Risk Management is an indispensable reference for today's financial risk professional.

Probability and Statistics for Engineering and the Sciences + Enhanced Webassign Access - 2017

Identifying the Culprit - National Research Council 2015-01-16

Eyewitnesses play an important role in criminal cases when they can identify culprits. Estimates suggest that tens of thousands of eyewitnesses make identifications in criminal investigations each year. Research

on factors that affect the accuracy of eyewitness identification procedures has given us an increasingly clear picture of how identifications are made, and more importantly, an improved understanding of the principled limits on vision and memory that can lead to failure of identification. Factors such as viewing conditions, duress, elevated emotions, and biases influence the visual perception experience. Perceptual experiences are stored by a system of memory that is highly malleable and continuously evolving, neither retaining nor divulging content in an informational vacuum. As such, the fidelity of our memories to actual events may be compromised by many factors at all stages of processing, from encoding to storage and retrieval. Unknown to the individual, memories are forgotten, reconstructed, updated, and distorted. Complicating the process further, policies governing law enforcement procedures for conducting and recording identifications are not standard, and policies and practices to address the issue of misidentification vary widely. These limitations can produce mistaken identifications with significant consequences. What can we do to make certain that eyewitness identification convicts the guilty and exonerates the innocent? Identifying the Culprit makes the case that better data collection and research on eyewitness identification, new law enforcement training protocols, standardized procedures for administering line-ups, and improvements in the handling of eyewitness identification in court can increase the chances that accurate identifications are made. This report explains the science that has emerged during the past 30 years on eyewitness identifications and identifies best practices in eyewitness procedures for the law enforcement community and in the presentation of eyewitness evidence in the courtroom. In order to continue the advancement of eyewitness identification research, the report recommends a focused research agenda. Identifying the Culprit will be an essential resource to assist the law enforcement and legal communities as they seek to understand the value and the limitations of eyewitness identification and make improvements to procedures.

Simulation Modeling and Analysis - Averill M. Law 2007

Since the publication of the first edition in 1982, the goal of Simulation Modeling and Analysis has always been to provide a comprehensive, state-of-the-art, and technically correct treatment of all important aspects of a simulation study. The book strives to make this material understandable by the use of intuition and numerous figures, examples, and problems. It is equally well suited for use in university courses, simulation practice, and self study. The book is widely regarded as the "bible" of simulation and now has more than 100,000 copies in print. The book can serve as the primary text for a variety of courses; for example: *A first course in simulation at the junior, senior, or beginning-graduate-student level in engineering, manufacturing, business, or computer science (Chaps. 1 through 4, and parts of Chaps. 5 through 9). At the end of such a course, the students will be prepared to carry out complete and effective simulation studies, and to take advanced simulation courses. *A second course in simulation for graduate students in any of the above disciplines (most of Chaps. 5 through 12). After completing this course, the student should be familiar with the more advanced methodological issues involved in a simulation study, and should be prepared to understand and conduct simulation research. *An introduction to simulation as part of a general course in operations research or management science (part of Chaps. 1, 3, 5, 6, and 9).

The ARML Power Contest - Thomas Kilkelly 2015-01-02

The ARML (American Regions Math League) Power Contest is truly a unique competition in which a team of students is judged on its ability to discover a pattern, express the pattern in precise mathematical language, and provide a logical proof of its conjectures. Just as a team of students can be self-directed to solve each problem set, a teacher, math team coach, or math circle leader could take these ideas and questions and lead students into problem solving and mathematical discovery. This book contains thirty-seven interesting and engaging problem sets from the ARML Power Contests from 1994 to 2013. They are generally extensions of the high school mathematics classroom and often connect two remote areas of mathematics. Additionally, they provide meaningful problem situations for both the novice and the veteran mathlete. Thomas Kilkelly has been a mathematics teacher for forty-three years. During that time he has been awarded several teaching honors and has coached many math teams to state and national championships. He has always been an advocate for more discovery, integration, and problem solving in the mathematics classroom. In the interest of fostering a greater awareness and appreciation of mathematics and its connections to other disciplines and everyday life, MSRI and the AMS are publishing books in the

Mathematical Circles Library series as a service to young people, their parents and teachers, and the mathematics profession. Titles in this series are co-published with the Mathematical Sciences Research Institute (MSRI).

Introduction to Applied Linear Algebra - Stephen Boyd 2018-06-07

A groundbreaking introduction to vectors, matrices, and least squares for engineering applications, offering a wealth of practical examples.

Linear Algebra for Economists - Fuad Aleskerov 2011-08-18

This textbook introduces students of economics to the fundamental notions and instruments in linear algebra. Linearity is used as a first approximation to many problems that are studied in different branches of science, including economics and other social sciences. Linear algebra is also the most suitable to teach students what proofs are and how to prove a statement. The proofs that are given in the text are relatively easy to understand and also endow the student with different ways of thinking in making proofs. Theorems for which no proofs are given in the book are illustrated via figures and examples. All notions are illustrated appealing to geometric intuition. The book provides a variety of economic examples using linear algebraic tools. It mainly addresses students in economics who need to build up skills in understanding mathematical reasoning. Students in mathematics and informatics may also be interested in learning about the use of mathematics in economics.

Lectures on Formal and Rigid Geometry - Siegfried Bosch 2014-08-22

The aim of this work is to offer a concise and self-contained 'lecture-style' introduction to the theory of classical rigid geometry established by John Tate, together with the formal algebraic geometry approach launched by Michel Raynaud. These Lectures are now viewed commonly as an ideal means of learning advanced rigid geometry, regardless of the reader's level of background. Despite its parsimonious style, the presentation illustrates a number of key facts even more extensively than any other previous work. This Lecture Notes Volume is a revised and slightly expanded version of a preprint that appeared in 2005 at the University of Münster's Collaborative Research Center "Geometrical Structures in Mathematics".

APC Question Bank and Sample Papers in Mathematics for Class 12 - Arya Publishing Company - M.L. Aggarwal

Question Bank and Sample Papers in Mathematics for Class XII by Prof. M.L. Aggarwal has been written according to the changed style of question paper relevant for 2015 Board Examinations. The Salient Features of the book are: Latest Sample Papers issued by the CBSE for 2015 Examinations-with solutions Chapterwise Basic Concepts and Important Results Chapterwise Assignments for Practice (1 mark, 4 marks, 6 marks) Chapterwise Questions from Previous Years' Board Papers Ten Sample Papers for Practice (4 Solved & 6 Unsolved) CBSE Examination Paper 2014 (Fully Solved) (Delhi and Outside Delhi)

Exercises And Problems In Linear Algebra - John M Erdman 2020-09-28

This book contains an extensive collection of exercises and problems that address relevant topics in linear algebra. Topics that the author finds missing or inadequately covered in most existing books are also included. The exercises will be both interesting and helpful to an average student. Some are fairly routine calculations, while others require serious thought. The format of the questions makes them suitable for teachers to use in quizzes and assigned homework. Some of the problems may provide excellent topics for presentation and discussions. Furthermore, answers are given for all odd-numbered exercises which will be extremely useful for self-directed learners. In each chapter, there is a short background section which includes important definitions and statements of theorems to provide context for the following exercises and problems.

Bandit Algorithms - Tor Lattimore 2020-07-16

A comprehensive and rigorous introduction for graduate students and researchers, with applications in sequential decision-making problems.

Calculus for Business, Economics, and the Social and Life Sciences - Laurence D. Hoffmann 2007-06-01

Calculus for Business, Economics, and the Social and Life Sciences introduces calculus in real-world contexts and provides a sound, intuitive understanding of the basic concepts students need as they pursue careers in business, the life sciences, and the social sciences. The new Ninth Edition builds on the

straightforward writing style, practical applications from a variety of disciplines, clear step-by-step problem solving techniques, and comprehensive exercise sets that have been hallmarks of Hoffmann/Bradley's success through the years.

Category Theory in Context - Emily Riehl 2017-03-09

Introduction to concepts of category theory — categories, functors, natural transformations, the Yoneda lemma, limits and colimits, adjunctions, monads — revisits a broad range of mathematical examples from the categorical perspective. 2016 edition.

The Mathematical Theory of Communication - Claude E Shannon 1998-09-01

Scientific knowledge grows at a phenomenal pace—but few books have had as lasting an impact or played as important a role in our modern world as *The Mathematical Theory of Communication*, published originally as a paper on communication theory more than fifty years ago. Republished in book form shortly thereafter, it has since gone through four hardcover and sixteen paperback printings. It is a revolutionary work, astounding in its foresight and contemporaneity. The University of Illinois Press is pleased and honored to issue this commemorative reprinting of a classic.

PISA The PISA 2003 Assessment Framework Mathematics, Reading, Science and Problem Solving Knowledge and Skills - OECD 2004-03-02

The PISA 2003 Assessment Framework presents the conceptual underpinning of the PISA 2003 assessments. Within each assessment area, the volume defines the content that students need to acquire, the processes that need to be performed and the contexts in which knowledge and skills are applied.

Using R for Introductory Statistics - John Verzani 2018-10-03

The second edition of a bestselling textbook, *Using R for Introductory Statistics* guides students through the basics of R, helping them overcome the sometimes steep learning curve. The author does this by breaking the material down into small, task-oriented steps. The second edition maintains the features that made the first edition so popular, while updating data, examples, and changes to R in line with the current version. See What's New in the Second Edition: Increased emphasis on more idiomatic R provides a grounding in the functionality of base R. Discussions of the use of RStudio helps new R users avoid as many pitfalls as possible. Use of knitr package makes code easier to read and therefore easier to reason about. Additional information on computer-intensive approaches motivates the traditional approach. Updated examples and data make the information current and topical. The book has an accompanying package, *UsingR*, available from CRAN, R's repository of user-contributed packages. The package contains the data sets mentioned in the text (`data(package="UsingR")`), answers to selected problems (`answers()`), a few demonstrations (`demo()`), the errata (`errata()`), and sample code from the text. The topics of this text line up closely with traditional teaching progression; however, the book also highlights computer-intensive approaches to motivate the more traditional approach. The authors emphasize realistic data and examples and rely on visualization techniques to gather insight. They introduce statistics and R seamlessly, giving students the tools they need to use R and the information they need to navigate the sometimes complex world of statistical computing.

Everyday Calculus - Oscar Fernandez 2017-03-07

A fun look at calculus in our everyday lives *Calculus*. For some of us, the word conjures up memories of ten-pound textbooks and visions of tedious abstract equations. And yet, in reality, calculus is fun and accessible, and surrounds us everywhere we go. In *Everyday Calculus*, Oscar Fernandez demonstrates that calculus can be used to explore practically any aspect of our lives, including the most effective number of hours to sleep and the fastest route to get to work. He also shows that calculus can be both useful—determining which seat at the theater leads to the best viewing experience, for instance—and fascinating—exploring topics such as time travel and the age of the universe. Throughout, Fernandez presents straightforward concepts, and no prior mathematical knowledge is required. For advanced math fans, the mathematical derivations are included in the appendixes. The book features a new preface that alerts readers to new interactive online content, including demonstrations linked to specific figures in the book as well as an online supplement. Whether you're new to mathematics or already a curious math enthusiast, *Everyday Calculus* will convince even die-hard skeptics to view this area of math in a whole new way.

Sentiment Analysis for Social Media - Carlos A. Iglesias 2020-04-02

Sentiment analysis is a branch of natural language processing concerned with the study of the intensity of the emotions expressed in a piece of text. The automated analysis of the multitude of messages delivered through social media is one of the hottest research fields, both in academy and in industry, due to its extremely high potential applicability in many different domains. This Special Issue describes both technological contributions to the field, mostly based on deep learning techniques, and specific applications in areas like health insurance, gender classification, recommender systems, and cyber aggression detection.

An Introduction to Mathematical Statistics and Its Applications - Richard J. Larsen 2012

Noted for its integration of real-world data and case studies, this text offers sound coverage of the theoretical aspects of mathematical statistics. The authors demonstrate how and when to use statistical methods, while reinforcing the calculus that students have mastered in previous courses. Throughout the Fifth Edition, the authors have added and updated examples and case studies, while also refining existing features that show a clear path from theory to practice.

Bayesian Data Analysis, Third Edition - Andrew Gelman 2013-11-01

Now in its third edition, this classic book is widely considered the leading text on Bayesian methods, lauded for its accessible, practical approach to analyzing data and solving research problems. Bayesian Data Analysis, Third Edition continues to take an applied approach to analysis using up-to-date Bayesian methods. The authors—all leaders in the statistics community—introduce basic concepts from a data-analytic perspective before presenting advanced methods. Throughout the text, numerous worked examples drawn from real applications and research emphasize the use of Bayesian inference in practice. New to the Third Edition Four new chapters on nonparametric modeling Coverage of weakly informative priors and boundary-avoiding priors Updated discussion of cross-validation and predictive information criteria Improved convergence monitoring and effective sample size calculations for iterative simulation Presentations of Hamiltonian Monte Carlo, variational Bayes, and expectation propagation New and revised software code The book can be used in three different ways. For undergraduate students, it introduces Bayesian inference starting from first principles. For graduate students, the text presents effective current approaches to Bayesian modeling and computation in statistics and related fields. For researchers, it provides an assortment of Bayesian methods in applied statistics. Additional materials, including data sets used in the examples, solutions to selected exercises, and software instructions, are available on the book's web page.

Mathematics for Machine Learning - Marc Peter Deisenroth 2020-04-23

The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

Iterative Methods for Sparse Linear Systems - Yousef Saad 2003-04-01

Mathematics of Computing -- General.

New General Mathematics for Junior Secondary Schools - Murray Macrae 2008-06-03

This well-established series, the most popular in Nigeria, has been fully revised to reflect recent developments in mathematics education at junior secondary level and the views of the many users of the books. It has especially been revised to fully cover the requirements of the new NERDC Universal Basic Education Curriculum.

The R Book - Michael J. Crawley 2007-06-13

The high-level language of R is recognized as one of the most powerful and flexible statistical software environments, and is rapidly becoming the standard setting for quantitative analysis, statistics and graphics. R provides free access to unrivalled coverage and cutting-edge applications, enabling the user to apply numerous statistical methods ranging from simple regression to time series or multivariate analysis. Building on the success of the author's bestselling *Statistics: An Introduction using R*, *The R Book* is packed with worked examples, providing an all inclusive guide to R, ideal for novice and more accomplished users alike. The book assumes no background in statistics or computing and introduces the advantages of the R environment, detailing its applications in a wide range of disciplines. Provides the first comprehensive reference manual for the R language, including practical guidance and full coverage of the graphics facilities. Introduces all the statistical models covered by R, beginning with simple classical tests such as chi-square and t-test. Proceeds to examine more advanced methods, from regression and analysis of variance, through to generalized linear models, generalized mixed models, time series, spatial statistics, multivariate statistics and much more. The R Book is aimed at undergraduates, postgraduates and professionals in science, engineering and medicine. It is also ideal for students and professionals in statistics, economics, geography and the social sciences.

Fundamentals of Mathematical Statistics - S.C. Gupta 2020-09-10

Knowledge updating is a never-ending process and so should be the revision of an effective textbook. The book originally written fifty years ago has, during the intervening period, been revised and reprinted several times. The authors have, however, been thinking, for the last few years that the book needed not only a thorough revision but rather a substantial rewriting. They now take great pleasure in presenting to the readers the twelfth, thoroughly revised and enlarged, Golden Jubilee edition of the book. The subject-matter in the entire book has been re-written in the light of numerous criticisms and suggestions received from the users of the earlier editions in India and abroad. The basis of this revision has been the emergence of new literature on the subject, the constructive feedback from students and teaching fraternity, as well as those changes that have been made in the syllabi and/or the pattern of examination papers of numerous universities. Knowledge updating is a never-ending process and so should be the revision of an effective textbook. The book originally written fifty years ago has, during the intervening period, been revised and reprinted several times. The authors have, however, been thinking, for the last few years that the book needed not only a thorough revision but rather a substantial rewriting. They now take great pleasure in presenting to the readers the twelfth, thoroughly revised and enlarged, Golden Jubilee edition of the book. The subject-matter in the entire book has been re-written in the light of numerous criticisms and suggestions received from the users of the earlier editions in India and abroad. The basis of this revision has been the emergence of new literature on the subject, the constructive feedback from students and teaching fraternity, as well as those changes that have been made in the syllabi and/or the pattern of examination papers of numerous universities. Knowledge updating is a never-ending process and so should be the revision of an effective textbook. The book originally written fifty years ago has, during the intervening period, been revised and reprinted several times. The authors have, however, been thinking, for the last few years that the book needed not only a thorough revision but rather a substantial rewriting. They now take great pleasure in presenting to the readers the twelfth, thoroughly revised and enlarged, Golden Jubilee edition of the book. The subject-matter in the entire book has been re-written in the light of numerous criticisms and suggestions received from the users of the earlier editions in India and abroad. The basis of this revision has been the emergence of new literature on the subject, the constructive feedback from students and teaching fraternity, as well as those changes that have been made in the syllabi and/or the pattern of examination papers of numerous universities. Some prominent additions are given below: 1. Variance of Degenerate Random Variable 2. Approximate Expression for Expectation and Variance 3. Lyapounov's Inequality 4. Holder's Inequality 5. Minkowski's Inequality 6. Double Expectation Rule or Double-E Rule and many others

Slicing the Truth - Denis R Hirschfeldt 2014-07-18

This book is a brief and focused introduction to the reverse mathematics and computability theory of combinatorial principles, an area of research which has seen a particular surge of activity in the last few years. It provides an overview of some fundamental ideas and techniques, and enough context to make it

possible for students with at least a basic knowledge of computability theory and proof theory to appreciate the exciting advances currently happening in the area, and perhaps make contributions of their own. It adopts a case-study approach, using the study of versions of Ramsey's Theorem (for colorings of tuples of natural numbers) and related principles as illustrations of various aspects of computability theoretic and reverse mathematical analysis. This book contains many exercises and open questions. Contents: Setting Off: An Introduction Gathering Our Tools: Basic Concepts and Notation Finding Our Path: König's Lemma and Computability Gauging Our Strength: Reverse Mathematics In Defense of Disarray Achieving Consensus: Ramsey's Theorem Preserving Our Power: Conservativity Drawing a Map: Five Diagrams Exploring Our Surroundings: The World Below RT_2^2 Charging Ahead: Further Topics Lagniappe: A Proof of Liu's Theorem Readership: Graduates and researchers in mathematical logic. Key Features: This book assumes minimal background in mathematical logic and takes the reader all the way to current research in a highly active

area. It is the first detailed introduction to this particular approach to this area of research. The combination of fully worked out arguments and exercises make this book well suited to self-study by graduate students and other researchers unfamiliar with the area. Keywords: Reverse Mathematics; Computability Theory; Computable Mathematics; Computable Combinatorics
Mathematics for Computer Science - Eric Lehman 2017-03-08
This book covers elementary discrete mathematics for computer science and engineering. It emphasizes mathematical definitions and proofs as well as applicable methods. Topics include formal logic notation, proof methods; induction, well-ordering; sets, relations; elementary graph theory; integer congruences; asymptotic notation and growth of functions; permutations and combinations, counting principles; discrete probability. Further selected topics may also be covered, such as recursive definition and structural induction; state machines and invariants; recurrences; generating functions.