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AMS Short Course, Discrete Differential Geometry, January 8-9, 2018, San Diego, California
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CARPENTER GIDEON

In Pursuit of the Traveling Salesman Springer Science & Business Media

This book offers an excursion through the developmental area of research mathematics. It presents some 40 papers, published between the 1870s and the 1970s, on proofs of the Cantor-Bernstein theorem and the related Bernstein division theorem. While the emphasis is placed on providing accurate proofs, similar to the originals, the discussion is broadened to include aspects that pertain to the methodology of the development of mathematics and to the philosophy of mathematics. Works of prominent mathematicians and logicians are reviewed, including Cantor, Dedekind, Schröder, Bernstein, Borel, Zermelo, Poincaré, Russell, Peano, the Königs, Hausdorff, Sierpinski, Tarski, Banach, Brouwer and several others mainly of the Polish and the Dutch schools. In its attempt to present a diachronic narrative of one mathematical topic, the book resembles Lakatos' celebrated book *Proofs and Refutations*. Indeed, some of the observations made by Lakatos are corroborated herein. The analogy between the two books is clearly anything but superficial, as the present book also offers new theoretical insights into the methodology of the development of mathematics (proof-processing), with implications for the historiography of mathematics.

A Surprising Excursion Through the Astonishing World of Math Cengage Learning

We use addition on a daily basis—yet how many of us stop to truly consider the enormous and remarkable ramifications of this mathematical activity? *Summing It Up* uses addition as a springboard to present a fascinating and accessible look at numbers and number theory, and how we apply beautiful numerical properties to answer math problems. Mathematicians Avner Ash and Robert Gross explore addition's most basic characteristics as well as the addition of squares and other powers before moving onward to infinite series, modular forms, and issues at the forefront of current mathematical research. Ash and Gross tailor their succinct and engaging investigations for math enthusiasts of all backgrounds. Employing college algebra, the first part of the book examines such questions as, can all positive numbers be written as a sum of four perfect squares? The second section of the book incorporates calculus and examines infinite series—long sums that can only be defined by the concept of limit, as in the example of $1 + 1/2 + 1/4 + \dots = ?$ With the help of some group theory and geometry, the third section ties together the first two parts of the book through a discussion of modular forms—the analytic functions on the upper half-plane of the complex numbers that have growth and transformation properties. Ash and Gross show how modular forms are indispensable in modern number theory, for example in the proof of Fermat's Last Theorem. Appropriate for numbers novices as well as college math majors, *Summing It Up* delves into mathematics that will enlighten anyone fascinated by numbers.

AMS Short Course, Discrete Differential Geometry, January 8-9, 2018, San Diego, California Springer
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Excursions in Modern Mathematics introduces you to the power of math by exploring applications like social choice and management science, showing that math is more than a set of formulas. Ideal for an applied liberal arts math course, Tannenbaum's text is known for its

clear, accessible writing style and its unique exercise sets that build in complexity from basic to more challenging. The Eighth Edition offers more real data and applications to connect with today's readers, expanded coverage of applications like growth, and revised exercise sets.

Mathematical Circles American Mathematical Soc.

This monograph discusses the existence and regularity properties of local times associated to a continuous semimartingale, as well as excursion theory for Brownian paths. Realizations of Brownian excursion processes may be translated in terms of the realizations of a Wiener process under certain conditions. With this aim in mind, the monograph presents applications to topics which are not usually treated with the same tools, e.g.: arc sine law, laws of functionals of Brownian motion, and the Feynman-Kac formula.

Excursions in the History of Mathematics Springer

Excursions in Classical Analysis will introduce students to advanced problem solving and undergraduate research in two ways: it will provide a tour of classical analysis, showcasing a wide variety of problems that are placed in historical context, and it will help students gain mastery of mathematical discovery and proof. The [Author]; presents a variety of solutions for the problems in the book. Some solutions reach back to the work of mathematicians like Leonhard Euler while others connect to other beautiful parts of mathematics. Readers will frequently see problems solved by using an idea that, at first glance, might not even seem to apply to that problem. Other solutions employ a specific technique that can be used to solve many different kinds of problems. *Excursions* emphasizes the rich and elegant interplay between continuous and discrete mathematics by applying induction, recursion, and combinatorics to traditional problems in classical analysis. The book will be useful in students' preparations for mathematics competitions, in undergraduate reading courses and seminars, and in analysis courses as a supplement. The book is also ideal for self study, since the chapters are independent of one another and may be read in any order.

Math Excursions K Simon and Schuster

MATHEMATICAL EXCURSIONS, Third Edition, teaches students that mathematics is a system of knowing and understanding our surroundings. For example, sending information across the Internet is better understood when one understands prime numbers; the perils of radioactive waste take on new meaning when one understands exponential functions; and the efficiency of the flow of traffic through an intersection is more interesting after seeing the system of traffic lights represented in a mathematical form. Students will learn those facets of mathematics that strengthen their quantitative understanding and expand the way they know, perceive, and comprehend their world. We hope you enjoy the journey. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

The Fourth Dimension: Toward a Geometry of Higher Reality Prometheus Books

This book provides a comprehensive, in-depth overview of elementary mathematics as explored in Mathematical Olympiads around the world. It expands on topics usually encountered in high school and could even be used as preparation for a first-semester undergraduate course. This first volume covers Real Numbers, Functions, Real Analysis, Systems of Equations, Limits and Derivatives, and

much more. As part of a collection, the book differs from other publications in this field by not being a mere selection of questions or a set of tips and tricks that applies to specific problems. It starts from the most basic theoretical principles, without being either too general or too axiomatic. Examples and problems are discussed only if they are helpful as applications of the theory. Propositions are proved in detail and subsequently applied to Olympic problems or to other problems at the Olympic level. The book also explores some of the hardest problems presented at National and International Mathematics Olympiads, as well as many essential theorems related to the content. An extensive Appendix offering hints on or full solutions for all difficult problems rounds out the book.

Mathematics at the Limits of Computation American Mathematical Soc.

The Classic Texts Series is the only of its kind selection of classic pieces of work that started off as bestseller and continues to be the bestseller even today. These classic texts have been designed so as to work as elementary textbooks which play a crucial role in building the concepts from scratch as in-depth knowledge of concepts is necessary for students preparing for various entrance exams. The present book on Higher Algebra presents all the elements of Higher Algebra in a single book meant to work as textbook for the students beginning their preparation of the varied aspects covered under Higher Algebra. The present book has been divided into 35 chapters namely Ratio, Proportion, Variation, Arithmetical Progression, Geometrical Progression, Harmonical Progression Theorems Connected with The Progression, Scales of Notation, Surds & Imaginary Quantities, The Theory of Quadratic Equations, Miscellaneous Equations, Permutations & Combinations, Mathematical Induction, Binomial Theorem Positive Integral Index, Binomial Theorem, Any Index, Multinomial Theorem, Logarithms, Exponential & Logarithmic Series, Interest & Annuities, Inequalities, Limiting Values & Vanishing Fractions, Convergency & Divergency of Series, Undetermined Coefficients, Partial Fractions, Recurring Series, Continued Fractions, Recurring Series, Continued Fractions, Indeterminate Equations of the First Degree, Recurring Continued Fractions, Indeterminate Equations of the Second Degree, Summation of Series, Theory of Numbers, The General Theory of Continued Fractions, Probability, Determinants, Miscellaneous Theorems & Examples and Theory of Equations, each subdivided into number of topics. The first few chapters in the book have been devoted to a fuller discussion of Ratio, Proportions, Variation and the Progressions. Both the theoretical text as well as examples have been treated minutely which will help in better understanding of the concepts covered in the book. Theoretical explanation of the concepts in points has been provided at the beginning of each chapter. At the end of each chapter, unsolved practice exercises have been provided to help aspirants revise the concepts discussed in the chapter. At the end of chapterwise study, miscellaneous examples have also been given along with answers and solutions to the unsolved examples covered in each chapter. All the relevant theorems covered under the syllabi of Higher Algebra have also been covered in the detail in this book. As the book covers the whole syllabi of Higher Algebra in detail along with ample number of solved examples, it for sure will help the students perfect the varied concepts covered under the Higher Algebra section.

Excursions in Modern Mathematics American Mathematical Soc.

Excursions in Mathematics Courier Corporation

Proofs of the Cantor-Bernstein Theorem SIAM

A straightedge, compass, and a little thought are all that's needed to discover the intellectual excitement of geometry. Harmonic division and Apollonian circles, inversive geometry, hexlet, Golden Section, more. 132 illustrations.

Mathematical Excursions to the World's Great Buildings Farrar, Straus and Giroux

This book is devoted exclusively to Lebesgue spaces and their direct derived spaces. Unique in its sole dedication, this book explores Lebesgue spaces, distribution functions and nonincreasing rearrangement. Moreover, it also deals with weak, Lorentz and the more recent variable exponent and grand Lebesgue spaces with considerable detail to the proofs. The book also touches on basic harmonic analysis in the aforementioned spaces. An appendix is given at the end of the book giving it a self-contained character. This work is ideal for teachers, graduate students and researchers.

Turning a Sphere from Red to Blue Springer

Too often math gets a bad rap, characterized as dry and difficult. But, Alex Bellos says, "math can be inspiring and brilliantly creative. Mathematical thought is one of the great achievements of the human race, and arguably the foundation of all human progress. The world of mathematics is a remarkable place." Bellos has traveled all around the globe and has plunged into history to uncover fascinating stories of mathematical achievement, from the breakthroughs of Euclid, the greatest mathematician of all time, to the creations of the Zen master of origami, one of the hottest areas of mathematical work today. Taking us into the wilds of the Amazon, he tells the story of a tribe there who can count only to five and reports on the latest findings about the math instinct—including the revelation that ants can actually count how many steps they've taken. Journeying to the Bay of Bengal, he interviews a Hindu sage about the brilliant mathematical insights of the Buddha, while in Japan he visits the godfather of Sudoku and introduces the brainteasing delights of mathematical games. Exploring the mysteries of randomness, he explains why it is impossible for our iPods to truly randomly select songs. In probing the many intrigues of that most beloved of numbers, pi, he visits with two brothers so obsessed with the elusive number that they built a supercomputer in their Manhattan apartment to study it. Throughout, the journey is enhanced with a wealth of intriguing illustrations, such as of the clever puzzles known as tangrams and the crochet creation of an American math professor who suddenly realized one day that she could knit a representation of higher dimensional space that no one had been able to visualize. Whether writing about how algebra solved Swedish traffic problems, visiting the Mental Calculation World Cup to disclose the secrets of lightning calculation, or exploring the links between pineapples and beautiful teeth, Bellos is a wonderfully engaging guide who never fails to delight even as he edifies. Here's Looking at Euclid is a rare gem that brings the beauty of math to life.

When Einstein Walked with Gödel Heinemann Educational Publishers

In this unit, kindergartners sort through many buttons in a class button hunt. T

HIGHER ALGEBRA Springer

This book is intended as a teacher's manual and as an independent-study handbook for students and mathematical competitors. Based on a traditional teaching philosophy and a non-traditional writing approach (the stair-step method), this book consists of new problems with solutions created by the authors. The main idea of this approach is to start from relatively easy problems and "step-

by-step" increase the level of difficulty toward effectively maximizing students' learning potential. In addition to providing solutions, a separate table of answers is also given at the end of the book. A broad view of mathematics is covered, well beyond the typical elementary level, by providing more in depth treatment of Geometry and Trigonometry, Number Theory, Algebra, Calculus, and Combinatorics.

Challenge and Thrill of Pre-College Mathematics Oxford University Press, USA

A discussion of fundamental mathematical principles from algebra to elementary calculus designed to promote constructive mathematical reasoning.

The Stair-Step Approach in Mathematics Courier Corporation

Algebra, with Arithmetic and Mensuration, from the Sanskrit of Brahmagupta and Bhaskara was one of the earliest fruits of the European encounter with the scientific heritage of India. Colebrooke's work first appeared in 1817 and remains useful even today. This work contains English translations of two classics of Indian mathematics, namely Bhaskara's Lilavati and Bijaganita. These are supplemented by the twelfth and eighteenth chapters of Brahmagupta's Brahmasphutasiddhanta. These translations are enriched by copious extracts from various commentaries by Gangadhara, Suryadasa, Ganesa and Rama-krsna on the Lilavati; by Krsna Daivajna and Ramakrsna on the Bijaganita. He also made use of the Persian translations of the mathematical treatises. 'The preface seeks to situate Indian Algebra in the context of development in other parts of the world.

An Interplay of the Continuous and the Discrete Courier Corporation

These two books are the first volumes of articles published from 1970 to 1990 in the Russian journal, Kvant. The influence of this magazine on mathematics and physics education in Russia is unmatched. Articles selected for these two volumes are written by leading Russian mathematicians and expositors.

Mathematical Excursions, Enhanced Edition Excursions in Mathematics

Two veteran math educators demonstrate how some "magnificent mistakes" had profound consequences for our understanding of mathematics' key concepts. In the nineteenth century, English mathematician William Shanks spent fifteen years calculating the value of pi, setting a record for the number of decimal places. Later, his calculation was reproduced using large wooden numerals to decorate the cupola of a hall in the Palais de la Découverte in Paris. However, in 1946,

with the aid of a mechanical desk calculator that ran for seventy hours, it was discovered that there was a mistake in the 528th decimal place. Today, supercomputers have determined the value of pi to trillions of decimal places. This is just one of the amusing and intriguing stories about mistakes in mathematics in this layperson's guide to mathematical principles. In another example, the authors show that when we "prove" that every triangle is isosceles, we are violating a concept not even known to Euclid - that of "betweenness." And if we disregard the time-honored Pythagorean theorem, this is a misuse of the concept of infinity. Even using correct procedures can sometimes lead to absurd - but enlightening - results. Requiring no more than high-school-level math competency, this playful excursion through the nuances of math will give you a better grasp of this fundamental, all-important science.

Springer

Challenge And Thrill Of Pre-College Mathematics Is An Unusual Enrichment Text For Mathematics Of Classes 9, 10, 11 And 12 For Use By Students And Teachers Who Are Not Content With The Average Level That Routine Text Dare Not Transcend In View Of Their Mass Clientele. It Covers Geometry, Algebra And Trigonometry Plus A Little Of Combinatorics. Number Theory And Probability. It Is Written Specifically For The Top Half Whose Ambition Is To Excel And Rise To The Peak Without Finding The Journey A Forced Uphill Task. The Undercurrent Of The Book Is To Motivate The Student To Enjoy The Pleasures Of A Mathematical Pursuit And Of Problem Solving. More Than 300 Worked Out Problems (Several Of Them From National And International Olympiads) Share With The Student The Strategy, The Excitement, Motivation, Modeling, Manipulation, Abstraction, Notation And Ingenuity That Together Make Mathematics. This Would Be The Starting Point For The Student, Of A Life-Long Friendship With A Sound Mathematical Way Of Thinking. There Are Two Reasons Why The Book Should Be In The Hands Of Every School Or College Student, (Whether He Belongs To A Mathematics Stream Or Not) One, If He Likes Mathematics And, Two, If He Does Not Like Mathematics- The Former, So That The Cramped Robot-Type Treatment In The Classroom Does Not Make Him Into The Latter; And The Latter So That By The Time He Is Halfway Through The Book, He Will Invite Himself Into The Former.

Excursions in Number Theory Houghton Mifflin College Division

This lively and accessible exploration of the nature of mathematics examines the role of the mathematician as well as the four major branches: number theory, algebra, geometry, and analysis.