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Set Theory: The Structure of Arithmetic - Norman T. Hamilton 2018-05-16

This text is formulated on the fundamental idea that much of mathematics, including the classical number systems, can best be based on set theory. 1961 edition.

A Mathematical History of the Golden Number - Roger Herz-Fischler 2013-12-31

This comprehensive study traces the historic development of division in extreme and mean ratio ("the golden number") from its first appearance in Euclid's Elements through the 18th century. Features numerous illustrations.

Mathematics for Human Flourishing - Francis Su 2020-01-07

"The ancient Greeks argued that the best life was filled with beauty, truth, justice, play and love. The mathematician Francis Su knows just where to find them."--Kevin Hartnett, Quanta Magazine" This is perhaps the most important mathematics book of our time. Francis Su shows mathematics is an experience of the mind and, most important, of the heart."--James Tanton, Global Math Project For mathematician Francis Su, a society without mathematical affection is like a city without concerts, parks, or museums. To miss out on mathematics is to live without experiencing some of humanity's most beautiful ideas. In this profound book, written for a wide audience but especially for those disenchanted

by their past experiences, an award-winning mathematician and educator weaves parables, puzzles, and personal reflections to show how mathematics meets basic human desires--such as for play, beauty, freedom, justice, and love--and cultivates virtues essential for human flourishing. These desires and virtues, and the stories told here, reveal how mathematics is intimately tied to being human. Some lessons emerge from those who have struggled, including philosopher Simone Weil, whose own mathematical contributions were overshadowed by her brother's, and Christopher Jackson, who discovered mathematics as an inmate in a federal prison. Christopher's letters to the author appear throughout the book and show how this intellectual pursuit can--and must--be open to all.

[Excursions in Number Theory](#) - Charles Stanley Ogilvy 1988-01-01

Challenging, accessible mathematical adventures involving prime numbers, number patterns, irrationals and iterations, calculating prodigies, and more. No special training is needed, just high school mathematics and an inquisitive mind. "A splendidly written, well selected and presented collection. I recommend the book unreservedly to all readers." — Martin Gardner.

A Source Book in Mathematics, 1200-1800 - Dirk

Jan Struik 2014-07-14

These selected mathematical writings cover the years when the foundations were laid for the theory of numbers, analytic geometry, and the calculus. Originally published in 1986. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

The New York Times Book of Mathematics - Gina Bari Kolata 2013

Presents a selection from the archives of the New York newspaper of its writings on mathematics from 1892 to 2010, covering such topics as chaos theory, statistics, cryptography, and computers.

Reverse Mathematics - John Stillwell
2019-09-24

This volume presents reverse mathematics to a general mathematical audience for the first time. Stillwell gives a representative view of this field, emphasizing basic analysis--finding the "right axioms" to prove fundamental theorems--and giving a novel approach to logic. to logic.

Mathematics for Everyman - Egmont Colerus
2013-02-04

This witty and engaging stylebook presents the fundamentals of mathematical operations: number systems, first steps in algebra and algebraic notation, common fractions and equations, and much more. 1958 edition.

What is Mathematics? - Herbert Robbins
Richard Courant (Ian Stewart) 1996

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

Number Theory and Its History - Oystein Ore
2012-07-06

Unusually clear, accessible introduction covers counting, properties of numbers, prime numbers, Aliquot parts, Diophantine problems, congruences, much more. Bibliography.

The Penguin Book of Curious and Interesting Mathematics - David G. Wells
1997

David Wells's intriguing anthology spans the centuries as he introduces a collection of choice eccentrics: people who looked for logical loopholes in the American Constitution, calmed their nerves with algebra or used sextants to measure the buttocks of Hottentot women. Along with Newton's views on chance and chaos, scenes from the life of Pythagoras and legal attempts to lay down the value of (pi), he presents maths in the Bible as well as maths and misogyny, madness and the military.

Mathematics From the Birth of Numbers - Jan Gullberg 1997-01-07

Traces the history of mathematics and numeration, and reviews symbolic logic, set theory, series, equations, functions, geometry, trigonometry, vector analysis, fractals, matrices, calculus, probability theory, and differential equations

Elements of Number Theory - I. M. Vinogradov
2016-01-14

Clear, detailed exposition that can be understood by readers with no background in advanced mathematics. More than 200 problems and full solutions, plus 100 numerical exercises. 1949 edition.

The Math Book - DK 2019-09-03

See how math's infinite mysteries and beauty unfold in this captivating educational book! Discover more than 85 of the most important mathematical ideas, theorems, and proofs ever devised with this beautifully illustrated book. Get to know the great minds whose revolutionary discoveries changed our world today. You don't have to be a math genius to follow along with this book! This brilliant book is packed with short, easy-to-grasp explanations, step-by-step diagrams, and witty illustrations that play with our ideas about numbers. What is an imaginary number? Can two parallel lines ever meet? How can math help us predict the future? All will be revealed and explained in this encyclopedia of mathematics. It's as easy as 1-2-3! The Math Book tells the exciting story of how mathematical thought advanced through history. This diverse and inclusive account will have something for everybody, including the math behind world economies and espionage.

This book charts the development of math around the world, from ancient mathematical ideas and inventions like prehistoric tally bones through developments in medieval and Renaissance Europe. Fast forward to today and gain insight into the recent rise of game and group theory. Delve in deeper into the history of math: - Ancient and Classical Periods 6000 BCE - 500 CE - The Middle Ages 500 - 1500 - The Renaissance 1500 - 1680 - The Enlightenment 1680 - 1800 - The 19th Century 1800 - 1900 - Modern Mathematics 1900 - Present The Series Simply Explained With over 7 million copies sold worldwide to date, The Math Book is part of the award-winning Big Ideas Simply Explained series from DK Books. It uses innovative graphics along with engaging writing to make complex subjects easier to understand.

A Book of Abstract Algebra - Charles C Pinter 2010-01-14

Accessible but rigorous, this outstanding text encompasses all of the topics covered by a typical course in elementary abstract algebra. Its easy-to-read treatment offers an intuitive approach, featuring informal discussions followed by thematically arranged exercises. This second edition features additional exercises to improve student familiarity with applications. 1990 edition.

17 Lectures on Fermat Numbers - Michal Krizek 2013-03-14

The pioneering work of Pierre de Fermat has attracted the attention of mathematicians for over 350 years. This book provides an overview of the many properties of Fermat numbers and demonstrates their applications in areas such as number theory, probability theory, geometry, and signal processing. It is an ideal introduction to the basic mathematical ideas and algebraic methods connected with the Fermat numbers.

How Numbers Work - New Scientist 2018-05-01

Think of a number between one and ten No, hang on, let's make this interesting. Between zero and infinity. Even if you stick to the whole numbers, there are a lot to choose from - an infinite number in fact. Throw in decimal fractions and infinity suddenly gets an awful lot bigger (is that even possible?) And then there are the negative numbers, the imaginary numbers, the irrational numbers like π which never end. It literally never ends. The world of

numbers is indeed strange and beautiful. Among its inhabitants are some really notable characters - π , e , the square root of minus two and the famous golden ratio to name just a few. Prime numbers occupy a special status. Zero is very odd indeed. And even some apparently common-or-garden integers such as 37 have special properties. *Adventures In Mathematics* takes a tour of this mind-blowing but beautiful world of numbers and the mathematical rules that connect them. Find out mathematicians' favourite numbers, and the ones they are afraid of (spoiler: it isn't 13). Discover the incredible connection between numbers and the rules of nature. And learn some amazing mathematical tricks that will keep you amused for hours.

Mathematics for the General Reader - E.C. Titchmarsh 2017-04-19

"A first-class mathematician's lucid, unhurried account of the science of numbers from arithmetic through the calculus." — James R. Newman, *The World of Mathematics*. This highly accessible introduction to mathematics is geared toward readers seeking a firm grasp of the essentials of mathematical theory and practice. The treatment also offers a concise outline of mathematical history and a clearer notion of why mathematicians do what they do. Author E. C. Titchmarsh, who served for many years as Savilian Professor of Geometry at Oxford University, begins with counting and the fundamentals of arithmetic. He guides readers through the complexities of algebra, fractions, geometry, irrational numbers, logarithms, infinite series, complex numbers, quadratic equations, trigonometry, functions, and integral and differential calculus. Titchmarsh's graceful, fluid style helps make complicated topics easier to grasp, and his inclusion of numerous examples will prove especially helpful to readers with little or no background in mathematics.

Weapons of Math Destruction - Cathy O'Neil 2017-09-05

NEW YORK TIMES BESTSELLER • A former Wall Street quant sounds the alarm on Big Data and the mathematical models that threaten to rip apart our social fabric—with a new afterword "A manual for the twenty-first-century citizen . . . relevant and urgent."—Financial Times NATIONAL BOOK AWARD LONGLIST • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY

The New York Times Book Review • The Boston Globe • Wired • Fortune • Kirkus Reviews • The Guardian • Nature • On Point We live in the age of the algorithm. Increasingly, the decisions that affect our lives—where we go to school, whether we can get a job or a loan, how much we pay for health insurance—are being made not by humans, but by machines. In theory, this should lead to greater fairness: Everyone is judged according to the same rules. But as mathematician and data scientist Cathy O’Neil reveals, the mathematical models being used today are unregulated and uncontestable, even when they’re wrong. Most troubling, they reinforce discrimination—propping up the lucky, punishing the downtrodden, and undermining our democracy in the process. Welcome to the dark side of Big Data.

The History of Mathematics - David M. Burton 1991

This text is designed for the junior/senior mathematics major who intends to teach mathematics in high school or college. It concentrates on the history of those topics typically covered in an undergraduate curriculum or in elementary schools or high schools. At least one year of calculus is a prerequisite for this course. This book contains enough material for a 2 semester course but it is flexible enough to be used in the more common 1 semester course.

The Life-Changing Magic of Numbers - Bobby Seagull 2018-10-25

If you found maths lessons at school irrelevant and boring, that’s because you didn’t have a teacher like Bobby Seagull. ***As seen on Monkman & Seagull’s Genius Guide to Britain*** Long before his rise to cult fandom on University Challenge, Bobby Seagull was obsessed with numbers. They were the keys that unlocked the randomness of football results, the beauty of art and the best way to get things done. In his absorbing book, Bobby tells the story of his life through numbers and shows the incredible ways maths can make sense of the world around us. From magic shows to rap lyrics, from hobbies to outer space, from fitness to food - Bobby’s infectious enthusiasm for numbers will change how you think about almost everything. Told through fascinating stories and insights from Bobby’s life, and with head-scratching puzzles in

every chapter, you’ll never look at numbers the same way again.

An Adventurer’s Guide to Number Theory - Richard Friedberg 2012-07-06

This witty introduction to number theory deals with the properties of numbers and numbers as abstract concepts. Topics include primes, divisibility, quadratic forms, and related theorems.

Linear Algebra as an Introduction to Abstract Mathematics - Isaiah Lankham 2015-11-30

This is an introductory textbook designed for undergraduate mathematics majors with an emphasis on abstraction and in particular, the concept of proofs in the setting of linear algebra. Typically such a student would have taken calculus, though the only prerequisite is suitable mathematical grounding. The purpose of this book is to bridge the gap between the more conceptual and computational oriented undergraduate classes to the more abstract oriented classes. The book begins with systems of linear equations and complex numbers, then relates these to the abstract notion of linear maps on finite-dimensional vector spaces, and covers diagonalization, eigenspaces, determinants, and the Spectral Theorem. Each chapter concludes with both proof-writing and computational exercises.

Managing the Mean Math Blues - Cheryl Ooten 2002-05

This book is designed so that reluctant and anxious math students learn current and relevant cognitive therapy and math study skill techniques. A broad variety of strategies (journaling, self-assessment, goal setting, math exercises, questionnaires, webbing, etc.) are designed to actively assist the learner in pushing past their individual barriers to master math. , Chapter topics include neutralizing negative math thoughts, intervention strategies for negative thoughts, how to use your smarts in math, learning modes, using mathematics without calling it “math,” choosing classrooms and teachers, how to retrieve the math stored in your mind, creative problem solving, and tackling test tremors. For anyone who needs and wants to succeed in math.

Proofs from THE BOOK - Martin Aigner 2013-06-29

According to the great mathematician Paul Erdős, God maintains perfect mathematical proofs in The Book. This book presents the authors candidates for such "perfect proofs," those which contain brilliant ideas, clever connections, and wonderful observations, bringing new insight and surprising perspectives to problems from number theory, geometry, analysis, combinatorics, and graph theory. As a result, this book will be fun reading for anyone with an interest in mathematics.

The Man who Loved Only Numbers - Paul Hoffman 1999

The biography of a mathematical genius. Paul Erdos was the most prolific pure mathematician in history and, arguably, the strangest too. 'A mathematical genius of the first order, Paul Erdos was totally obsessed with his subject -- he thought and wrote mathematics for nineteen hours a day until he died. He travelled constantly, living out of a plastic bag and had no interest in food, sex, companionship, art -- all that is usually indispensable to a human life. Paul Hoffman, in this marvellous biography, gives us a vivid and strangely moving portrait of this singular creature, one that brings out not only Erdos's genius and his oddness, but his warmth and sense of fun, the joyfulness of his strange life.' Oliver Sacks For six decades Erdos had no job, no hobbies, no wife, no home; he never learnt to cook, do laundry, drive a car and died a virgin. Instead he travelled the world with his mother in tow, arriving at the doorstep of esteemed mathematicians declaring 'My brain is open'. He travelled until his death at 83, racing across four continents to prove as many theorems as possible, fuelled by a diet of espresso and amphetamines. With more than 1,500 papers written or co-written,

Vision in Elementary Mathematics - W. W. Sawyer 2012-09-26

Sure-fire techniques of visualizing, dramatizing, and analyzing numbers promise to attract and retain students' attention and understanding. Topics include basic multiplication and division, algebra, word problems, graphs, negative numbers, fractions, many other practical applications of elementary mathematics. 1964 ed. Answers to Problems.

Numbers and Geometry - John Stillwell 2012-12-06

A beautiful and relatively elementary account of a part of mathematics where three main fields - algebra, analysis and geometry - meet. The book provides a broad view of these subjects at the level of calculus, without being a calculus book. Its roots are in arithmetic and geometry, the two opposite poles of mathematics, and the source of historic conceptual conflict. The resolution of this conflict, and its role in the development of mathematics, is one of the main stories in the book. Stillwell has chosen an array of exciting and worthwhile topics and elegantly combines mathematical history with mathematics. He covers the main ideas of Euclid, but with 2000 years of extra insights attached. Presupposing only high school algebra, it can be read by any well prepared student entering university. Moreover, this book will be popular with graduate students and researchers in mathematics due to its attractive and unusual treatment of fundamental topics. A set of well-written exercises at the end of each section allows new ideas to be instantly tested and reinforced.

99 Variations on a Proof - Philip Ording 2019-02-05

An exploration of mathematical style through 99 different proofs of the same theorem This book offers a multifaceted perspective on mathematics by demonstrating 99 different proofs of the same theorem. Each chapter solves an otherwise unremarkable equation in distinct historical, formal, and imaginative styles that range from Medieval, Topological, and Doggerel to Chromatic, Electrostatic, and Psychedelic. With a rare blend of humor and scholarly aplomb, Philip Ording weaves these variations into an accessible and wide-ranging narrative on the nature and practice of mathematics. Inspired by the experiments of the Paris-based writing group known as the Oulipo—whose members included Raymond Queneau, Italo Calvino, and Marcel Duchamp—Ording explores new ways to examine the aesthetic possibilities of mathematical activity. 99 Variations on a Proof is a mathematical take on Queneau's Exercises in Style, a collection of 99 retellings of the same story, and it draws unexpected connections to everything from mysticism and technology to architecture and sign language. Through diagrams, found material, and other imagery,

Ording illustrates the flexibility and creative potential of mathematics despite its reputation for precision and rigor. Readers will gain not only a bird's-eye view of the discipline and its major branches but also new insights into its historical, philosophical, and cultural nuances. Readers, no matter their level of expertise, will discover in these proofs and accompanying commentary surprising new aspects of the mathematical landscape.

Living Proof - Allison K. Henrich 2019

Wow! This is a powerful book that addresses a long-standing elephant in the mathematics room. Many people learning math ask "Why is math so hard for me while everyone else understands it?" and "Am I good enough to succeed in math?" In answering these questions the book shares personal stories from many now-accomplished mathematicians affirming that "You are not alone; math is hard for everyone" and "Yes; you are good enough." Along the way the book addresses other issues such as biases and prejudices that mathematicians encounter, and it provides inspiration and emotional support for mathematicians ranging from the experienced professor to the struggling mathematics student. --Michael Dorff, MAA President This book is a remarkable collection of personal reflections on what it means to be, and to become, a mathematician. Each story reveals a unique and refreshing understanding of the barriers erected by our cultural focus on "math is hard." Indeed, mathematics is hard, and so are many other things--as Stephen Kennedy points out in his cogent introduction. This collection of essays offers inspiration to students of mathematics and to mathematicians at every career stage. --Jill Pipher, AMS President This book is published in cooperation with the Mathematical Association of America.

Learning and Teaching Mathematics 0-8 - Helen Taylor 2013-11-14

'What a super book! It is absolutely packed with practical ideas and activities to help you love maths, and love teaching and/or learning it. It certainly helps to develop an enthusiasm for a subject most adults tend to say "I'm no good at..." - Early Years Educator 'A wonderful book, packed with practical ideas and activities to help all students love maths.' - Jo Boaler, Professor of Mathematics Education, Stanford University

Fostering an enthusiasm for mathematics in young children is a vital part of supporting their mathematical development. Underpinned by subject and pedagogical knowledge, case studies and research-based perspectives, the authors provide clear guidance on how to support young children's learning and understanding in an effective and engaging way. Contemporary approaches to developing essential mathematical learning for young children are explored, including: play, practical activities and talk for mathematics outdoor learning understanding pattern counting, calculation and place value measures and shape problem solving and representing mathematics assessment working with parents. Written for both trainees and practitioners working with children aged 0 to 8 years, including those studying for Early Years and Early Childhood degrees and those on Primary PGCE and Primary Education courses, this book offers mathematical subject knowledge and teaching ideas in one volume. Helen Taylor is Course Leader of PGCE Primary Part-time Mathematics at Canterbury Christ Church University. Andrew Harris is Course Leader of PGCE Modular Mathematics at Canterbury Christ Church University.

Unsolved Problems in Number Theory - Richard Guy 2004-07-13

Mathematics is kept alive by the appearance of new, unsolved problems. This book provides a steady supply of easily understood, if not easily solved, problems that can be considered in varying depths by mathematicians at all levels of mathematical maturity. This new edition features lists of references to OEIS, Neal Sloane's Online Encyclopedia of Integer Sequences, at the end of several of the sections.

An Introduction to Abstract Mathematics - Robert J. Bond 2007-08-24

Bond and Keane explicate the elements of logical, mathematical argument to elucidate the meaning and importance of mathematical rigor. With definitions of concepts at their disposal, students learn the rules of logical inference, read and understand proofs of theorems, and write their own proofs all while becoming familiar with the grammar of mathematics and its style. In addition, they will develop an appreciation of the different methods of proof (contradiction, induction), the value of a proof,

and the beauty of an elegant argument. The authors emphasize that mathematics is an ongoing, vibrant discipline its long, fascinating history continually intersects with territory still uncharted and questions still in need of answers. The authors extensive background in teaching mathematics shines through in this balanced, explicit, and engaging text, designed as a primer for higher-level mathematics courses. They elegantly demonstrate process and application and recognize the byproducts of both the achievements and the missteps of past thinkers. Chapters 1-5 introduce the fundamentals of abstract mathematics and chapters 6-8 apply the ideas and techniques, placing the earlier material in a real context. Readers interest is continually piqued by the use of clear explanations, practical examples, discussion and discovery exercises, and historical comments.

Gazette - Australian Mathematical Society -
Australian Mathematical Society 2000

A Mathematical Introduction to Logic -
Herbert Enderton 2001-01-23

A Mathematical Introduction to Logic, Second Edition, offers increased flexibility with topic coverage, allowing for choice in how to utilize the textbook in a course. The author has made this edition more accessible to better meet the needs of today's undergraduate mathematics and philosophy students. It is intended for the reader who has not studied logic previously, but who has some experience in mathematical reasoning. Material is presented on computer science issues such as computational complexity and database queries, with additional coverage of introductory material such as sets. * Increased flexibility of the text, allowing instructors more choice in how they use the textbook in courses. * Reduced mathematical rigour to fit the needs of undergraduate students

The Mathematics Bible - Colin Beveridge
2016-09-01

Mathematics has a history filled with brilliant minds and world-changing discoveries. It just needs to be made accessible. And that's exactly what "The Mathematics Bible" does. It describes the history and development of mathematics in easily understood language. It introduces the most important players, societies and cultures, like the Ancient Egyptians and Pythagoreans,

and key figures such as Galileo, Dodgson, Babbage and Lovelace. It brings the ancient science and art of mathematics into the contemporary world of the 21st century. Accessible, well-informed and fully illustrated, this is a book that shows perfectly just how varied and fascinating mathematics can be. These definitive guides to their subjects together have sold over three million copies worldwide. Their success is undoubtedly owed to the comprehensiveness and quality of content, for an excellent price, and the smaller size is nonetheless filled with 400 illustrations.

Math with Bad Drawings - Ben Orlin
2018-09-18

A hilarious reeducation in mathematics-full of joy, jokes, and stick figures-that sheds light on the countless practical and wonderful ways that math structures and shapes our world. In Math With Bad Drawings, Ben Orlin reveals to us what math actually is; its myriad uses, its strange symbols, and the wild leaps of logic and faith that define the usually impenetrable work of the mathematician. Truth and knowledge come in multiple forms: colorful drawings, encouraging jokes, and the stories and insights of an empathetic teacher who believes that math should belong to everyone. Orlin shows us how to think like a mathematician by teaching us a brand-new game of tic-tac-toe, how to understand an economic crises by rolling a pair of dice, and the mathematical headache that ensues when attempting to build a spherical Death Star. Every discussion in the book is illustrated with Orlin's trademark "bad drawings," which convey his message and insights with perfect pitch and clarity. With 24 chapters covering topics from the electoral college to human genetics to the reasons not to trust statistics, Math with Bad Drawings is a life-changing book for the math-estranged and math-enamored alike.

Numbers and Infinity - E. H. Sondheim
2006-01-01

This fresh overview of numbers and infinity avoids tedium and controversy while maintaining historical accuracy and modern relevance. Perfect for undergraduate mathematics or science history courses. 1981 edition.

New Scientist - 1997

The Real Number System - John M. H. Olmsted
2018-09-12
Concise but thorough and systematic, this

categorical discussion presents a series of step-by-step axioms. The highly accessible text includes numerous examples and more than 300 exercises, all with answers. 1962 edition.