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## Online Library A Certain Ambiguity A Mathematical Novel

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#### A CERTAIN AMBIGUITY

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#### A MATHEMATICAL NOVEL

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*Princeton University Press* While taking a class on infinity at Stanford in the late 1980s, Ravi Kapoor discovers that he is confronting the same mathematical and philosophical dilemmas that his mathematician grandfather had faced many decades earlier--and that had landed him in jail. Charged under an obscure blasphemy law in a small New Jersey town in 1919, Vijay Sahni is challenged by a skeptical judge to defend his belief that the certainty of mathematics can be extended to all human knowledge--including religion. Together, the two men discover the power--and the fallibility--of what has long been considered the pinnacle of human certainty, Euclidean geometry. As grandfather and grandson struggle with the question of whether there can ever be absolute certainty in mathematics or life, they are forced to reconsider their fundamental beliefs and choices. Their stories hinge on their explorations of parallel developments in the study of geometry and infinity--and the mathematics throughout is as rigorous and fascinating as the narrative and characters are compelling and complex. Moving and enlightening, *A Certain Ambiguity* is a story about what it means to face the extent--and the limits--of human knowledge.

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#### HOW MATHEMATICIANS THINK

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#### USING AMBIGUITY, CONTRADICTION, AND PARADOX TO CREATE MATHEMATICS

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*Princeton University Press* To many outsiders, mathematicians appear to think like computers, grimly grinding away with a strict formal logic and moving methodically--even algorithmically--from one black-and-white deduction to another. Yet mathematicians often describe their most important breakthroughs as creative, intuitive responses to ambiguity, contradiction, and paradox. A unique examination of this less-familiar aspect of mathematics, *How Mathematicians Think* reveals that mathematics is a profoundly creative activity and not just a body of formalized rules and results. Nonlogical qualities, William Byers shows, play an essential role in mathematics. Ambiguities, contradictions, and paradoxes can arise when ideas developed in different contexts come into contact. Uncertainties and conflicts do not impede but rather spur the development of mathematics.

Creativity often means bringing apparently incompatible perspectives together as complementary aspects of a new, more subtle theory. The secret of mathematics is not to be found only in its logical structure. The creative dimensions of mathematical work have great implications for our notions of mathematical and scientific truth, and *How Mathematicians Think* provides a novel approach to many fundamental questions. Is mathematics objectively true? Is it discovered or invented? And is there such a thing as a "final" scientific theory? Ultimately, *How Mathematicians Think* shows that the nature of mathematical thinking can teach us a great deal about the human condition itself.

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### **A CERTAIN AMBIGUITY**

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While Taking A Class On Infinity At Stanford In The Late 1980S, Ravi Kapoor Discovers That He Is Confronting The Same Mathematical And Philosophical Dilemmas That His Mathematician Grandfather Had Faced Many Decades Earlier-And That Had Landed Him In Jail. Charged Under An Obscure Blasphemy Law In A Small New Jersey Town In 1919, Vijay Sahni Was Challenged By A Sceptical Judge To Defend His Belief That The Certainty Of Mathematics Can Be Extended To All Human Knowledge-Including Religion. Both Vijay And Ravi Discover The Power-And The Fallibility-Of What Has Long Been Considered The Pinnacle Of Human Certainty, Euclidean Geometry. As Grandfather And Grandson Struggle With The Question Of Whether There Can Ever Be Absolute Certainty In Mathematics Or Life, They Are Forced To Reconsider Their Fundamental Beliefs And Choices. Their Stories Hinge On Their Explorations Of Parallel Developments In The Study Of Geometry And Infinity-And The Mathematics Throughout Is As Rigorous And Fascinating As The Narrative And Characters Are Compelling And Complex. Moving And Enlightening, *A Certain Ambiguity* Is A Story About What It Means To Face The Extent-And The Limits-Of Human Knowledge. Praise For The Book *A Certain Ambiguity* Is An Amazing Narrative That Glows With A Vivid Sense Of The Beauty And Wonder Of Mathematics . . . Mixing Fiction With Non-Fiction, [It] Is A Veritable History Of Mathematics Disguised As A Novel.'-Martin Gardner This Is A Truly Captivating Thriller That Will Take You On A Whirlwind Tour To Infinity-And Beyond. But Be Warned: Once You Start Reading, You Won'T Be Able To Put It Aside Until Finished!'-Eli Maor, Author Of *E: The Story Of A Number And The Pythagorean Theorem: A 4,000-Year History* By Deftly Blending The Young Man'S Story With Mathematical Ideas And Historical Developments . . . The Authors Succeed Brilliantly In Taking The Reader On A Tour Of Some Of The Major Highlights In The Philosophy Of Mathematics . . . The Book Also Examines, Through The Minds Of Its Characters, The Natures Of Faith . . . And Truth.'-Keith Devlin, Author Of *The Math Gene*

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### **PYTHAGORAS' REVENGE**

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### **A MATHEMATICAL MYSTERY**

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*Princeton University Press* The celebrated mathematician and philosopher Pythagoras left no writings. But what if he had and the manuscript had never been found? Where would it be located? Two mathematicians, one American, one British, set out, unbeknownst to each other, to find the missing manuscript.

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### **UNCLE PETROS AND GOLDBACH'S CONJECTURE**

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*Faber & Faber* *Uncle Petros* is a family joke. An ageing recluse, he lives alone in a suburb of Athens, playing chess and tending to his garden. If you didn't know better, you'd surely think he was one of life's failures. But his young nephew suspects otherwise. For Uncle Petros, he discovers, was once a celebrated mathematician, brilliant and foolhardy enough to stake everything on solving a problem that had defied all attempts at proof for nearly three centuries - Goldbach's Conjecture. His quest brings him into contact with some of the century's greatest mathematicians, including the Indian prodigy Ramanujan and the young Alan Turing. But his struggle is lonely and single-minded, and by the end it has apparently destroyed his life. Until that is a final encounter with his nephew opens up to Petros, once more, the deep mysterious beauty of mathematics. *Uncle Petros and Goldbach's Conjecture* is an inspiring novel of intellectual adventure, proud genius, the exhilaration of pure mathematics - and the rivalry and antagonism which torment those who pursue impossible goals.

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### **THE PARROT'S THEOREM**

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### **A NOVEL**

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*Macmillan* Mr. Ruche, a Parisian bookseller, receives a bequest from a long lost friend in the Amazon of a vast library of math books, which propels him into a great exploration of the story of mathematics. Meanwhile Max, whose family lives with Mr. Ruche, takes in a voluble parrot who will discuss math with anyone. When Mr. Ruche learns of his friend's mysterious death in a Brazilian rainforest, he decides that with the parrot's help he will use these books to teach Max and his brother and sister the mysteries of Euclid's Elements,

Pythagoras's Theorem and the countless other mathematical wonders. But soon it becomes clear that Mr. Ruche has inherited the library for reasons other than enlightenment, and before he knows it the household is racing to prevent the parrot and vital, new theorems from falling into the wrong hands. An immediate bestseller when first published in France, *The Parrot's Theorem* charmingly combines a straightforward history of mathematics and a first-rate murder mystery.

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## MATH GIRLS

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*Bento Books Inc* Combining mathematical rigor with light romance, *Math Girls* is a unique introduction to advanced mathematics, delivered through the eyes of three students as they learn to deal with problems seldom found in textbooks.

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## PRIME OBSESSION

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### BERNHARD RIEMANN AND THE GREATEST UNSOLVED PROBLEM IN MATHEMATICS

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*Joseph Henry Press* In August 1859 Bernhard Riemann, a little-known 32-year old mathematician, presented a paper to the Berlin Academy titled: "On the Number of Prime Numbers Less Than a Given Quantity." In the middle of that paper, Riemann made an incidental remark — a guess, a hypothesis. What he tossed out to the assembled mathematicians that day has proven to be almost cruelly compelling to countless scholars in the ensuing years. Today, after 150 years of careful research and exhaustive study, the question remains. Is the hypothesis true or false? Riemann's basic inquiry, the primary topic of his paper, concerned a straightforward but nevertheless important matter of arithmetic — defining a precise formula to track and identify the occurrence of prime numbers. But it is that incidental remark — the Riemann Hypothesis — that is the truly astonishing legacy of his 1859 paper. Because Riemann was able to see beyond the pattern of the primes to discern traces of something mysterious and mathematically elegant shrouded in the shadows — subtle variations in the distribution of those prime numbers. Brilliant for its clarity, astounding for its potential consequences, the Hypothesis took on enormous importance in mathematics. Indeed, the successful solution to this puzzle would herald a revolution in prime number theory. Proving or disproving it became the greatest challenge of the age. It has become clear that the Riemann Hypothesis, whose resolution seems to hang tantalizingly just beyond our grasp, holds the key to a variety of scientific and mathematical investigations. The making and breaking of modern codes, which depend on the properties of the prime numbers, have roots in the Hypothesis. In a series of extraordinary developments during the 1970s, it emerged that even the physics of the atomic nucleus is connected in ways not yet fully understood to this strange conundrum. Hunting down the solution to the Riemann Hypothesis has become an obsession for many — the veritable "great white whale" of mathematical research. Yet despite determined efforts by generations of mathematicians, the Riemann Hypothesis defies resolution. Alternating passages of extraordinarily lucid mathematical exposition with chapters of elegantly composed biography and history, *Prime Obsession* is a fascinating and fluent account of an epic mathematical mystery that continues to challenge and excite the world. Posited a century and a half ago, the Riemann Hypothesis is an intellectual feast for the cognoscenti and the curious alike. Not just a story of numbers and calculations, *Prime Obsession* is the engrossing tale of a relentless hunt for an elusive proof — and those who have been consumed by it.

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## THE TENTH MUSE

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### A NOVEL

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*HarperCollins* **A RECOMMENDED BOOK FROM:** Los Angeles Times \* USA Today \* O, the Oprah Magazine \* BuzzFeed \* The Rumpus \* Entertainment Weekly \* Elle \* BBC \* Christian Science Monitor \* Electric Literature \* The Millions \* LitHub \* Publishers Weekly \* Kirkus \* Refinery29 \* Thrillist \* BookBub \* Nylon \* Bustle \* Goodreads An exhilarating, moving novel about a trailblazing mathematician whose research unearths her own extraordinary family story and its roots in World War II From the days of her childhood in the 1950s Midwest, Katherine knows she is different, and that her parents are not who they seem. As she matures from a girl of rare intelligence into an exceptional mathematician, traveling to Europe to further her studies, she must face the most human of problems—who is she? What is the cost of love, and what is the cost of ambition? These questions grow ever more entangled as Katherine strives to take her place in the world of higher mathematics and becomes involved with a brilliant and charismatic professor. When she embarks on a quest to conquer the Riemann hypothesis, the greatest unsolved mathematical problem of her time, she turns to a theorem with a mysterious history that may hold both the lock and the key to her identity, and to secrets long buried during World War II. Forced to confront some of the most consequential events of the twentieth century and rethink everything she knows of herself, she finds kinship in the stories of the women who came before her, and discovers how seemingly distant stories, lives, and ideas are inextricably linked to her own. *The Tenth Muse* is a gorgeous, sweeping tale about legacy, identity, and the beautiful ways the mind can make us free.

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## CONCEPTS OF MODERN MATHEMATICS

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*Courier Corporation* In this charming volume, a noted English mathematician uses humor and anecdote to illuminate the concepts of groups, sets, subsets, topology, Boolean algebra, and other mathematical subjects. 200 illustrations.

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## BOOK OF PROOF

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This book is an introduction to the language and standard proof methods of mathematics. It is a bridge from the computational courses (such as calculus or differential equations) that students typically encounter in their first year of college to a more abstract outlook. It lays a foundation for more theoretical courses such as topology, analysis and abstract algebra. Although it may be more meaningful to the student who has had some calculus, there is really no prerequisite other than a measure of mathematical maturity.

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## MATHEMATICS THROUGH THE EYES OF FAITH

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*Harper Collins* Book description to come.

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## MATHEMATICS FOR MACHINE LEARNING

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*Cambridge University Press* 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.

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## THE COLOSSAL BOOK OF MATHEMATICS

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### CLASSIC PUZZLES, PARADOXES, AND PROBLEMS : NUMBER THEORY, ALGEBRA, GEOMETRY, PROBABILITY, TOPOLOGY, GAME THEORY, INFINITY, AND OTHER TOPICS OF RECREATIONAL MATHEMATICS

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*W. W. Norton & Company* The author presents a selection of pieces from his Scientific American "Mathematical Games" column, presenting puzzles and concepts that range from arithmetic and geometrical games to the meaning of M.C. Escher's artwork.

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## THE MATHEMATICIAN'S SHIVA

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### A NOVEL

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*Penguin* **WINNER OF THE NATIONAL JEWISH BOOK AWARD FOR OUTSTANDING DEBUT FICTION** For readers of *This Is Where I Leave You* and *Everything Is Illuminated*, "a brilliant and compelling family saga full of warmth, pathos, history and humor" (Jonathan Evison, author of *West of Here*) When the greatest female mathematician in history passes away, her son, Alexander "Sasha" Karnokovitch, just wants to mourn his mother in peace. But rumor has it the notoriously eccentric Polish émigré has solved one of the most difficult problems in all of mathematics, and has spitefully taken the solution to her grave. As a ragtag group of mathematicians from around the world descends upon Rachela's shiva, determined to find the proof or solve it for themselves—even if it means prying up the floorboards for notes or desperately scrutinizing the mutterings of her African Grey parrot—Sasha must come to terms with his mother's outsized influence on his life. Spanning decades and continents, from a crowded living room in Madison, Wisconsin, to the windswept beach on the Barents Sea where a young Rachela had her first mathematical breakthrough, *The Mathematician's Shiva* is an unexpectedly moving and uproariously funny novel that captures humanity's drive not just to survive, but to achieve the impossible.

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## SACRED MATHEMATICS

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### JAPANESE TEMPLE GEOMETRY

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*Princeton University Press* Between the seventeenth and nineteenth centuries Japan was totally isolated from the West by imperial decree. During that time, a unique brand of homegrown mathematics flourished, one that was completely uninfluenced by developments in Western mathematics. People from all walks of life--samurai, farmers, and merchants--inscribed a wide variety of geometry problems on wooden tablets called sangaku and hung them in Buddhist temples and Shinto shrines throughout Japan. Sacred Mathematics is the first book published in the West to fully examine this tantalizing--and incredibly beautiful--mathematical tradition. Fukagawa Hidetoshi and Tony Rothman present for the first time in English excerpts from the travel diary of a nineteenth-century Japanese mathematician, Yamaguchi Kanzan, who journeyed on foot throughout Japan to collect temple geometry problems. The authors set this fascinating travel narrative--and almost everything else that is known about temple geometry--within the broader cultural and historical context of the period. They explain the sacred and devotional aspects of sangaku, and reveal how Japanese folk mathematicians discovered many well-known theorems independently of mathematicians in the West--and in some cases much earlier. The book is generously illustrated with photographs of the tablets and stunning artwork of the period. Then there are the geometry problems themselves, nearly two hundred of them, fully illustrated and ranging from the utterly simple to the virtually impossible. Solutions for most are provided. A unique book in every respect, Sacred Mathematics demonstrates how mathematical thinking can vary by culture yet transcend cultural and geographic boundaries.

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## MIND TOOLS

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### THE FIVE LEVELS OF MATHEMATICAL REALITY

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*Courier Corporation* Originally published: Boston: Houghton Mifflin, 1987.

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## STALKING THE RIEMANN HYPOTHESIS

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### THE QUEST TO FIND THE HIDDEN LAW OF PRIME NUMBERS

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*Vintage* For 150 years the Riemann hypothesis has been the holy grail of mathematics. Now, at a moment when mathematicians are finally moving in on a proof, Dartmouth professor Dan Rockmore tells the riveting history of the hunt for a solution. In 1859 German professor Bernhard Riemann postulated a law capable of describing with an amazing degree of accuracy the occurrence of the prime numbers. Rockmore takes us all the way from Euclid to the mysteries of quantum chaos to show how the Riemann hypothesis lies at the very heart of some of the most cutting-edge research going on today in physics and mathematics.

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## INCOMPLETENESS: THE PROOF AND PARADOX OF KURT GÖDEL (GREAT DISCOVERIES)

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*W. W. Norton & Company* A portrait of the eminent twentieth-century mathematician discusses his theorem of incompleteness, relationships with such contemporaries as Albert Einstein, and untimely death as a result of mental instability and self-starvation.

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## HOW NOT TO BE WRONG

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### THE POWER OF MATHEMATICAL THINKING

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The columnist for Slate's popular "Do the Math" celebrates the logical, illuminating nature of math in today's world, sharing in accessible language mathematical approaches that demystify complex and everyday problems.

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## WATERS CLOSE OVER US

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## A JOURNEY ALONG THE NARMADA

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*Harper Collins* **A journey to the centre of the Indian identity** The Narmada is the only river in India to merit a parikrama. The traditional journey takes more than three years and ends where it begins, having covered more than 2,600 kilometres. Bal follows the parikrama to study the stories of the clash of cultures along the river. It is here that the agriculturist encountered the forest dweller, the Indo-European north faced the Dravidian south, the Afghan battled the Gond and the dam builders confronted the environmentalists. Perhaps, then, it is no coincidence that the Adi Sankara attained the realization of Advaita - non-duality - on these banks. As the author seeks to understand whether such reconciliation is possible in every case, the stories he encounters take on a life of their own - from Osho's relatives who still safeguard his memory in sari shops to the king of a small island who spends moonlit nights firing bullets into the river.

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## PRIME SUSPECTS

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## THE ANATOMY OF INTEGERS AND PERMUTATIONS

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*Princeton University Press* **An outrageous graphic novel that investigates key concepts in mathematics** Integers and permutations—two of the most basic mathematical objects—are born of different fields and analyzed with separate techniques. Yet when the Mathematical Sciences Investigation team of crack forensic mathematicians, led by Professor Gauss, begins its autopsies of the victims of two seemingly unrelated homicides, Arnie Integer and Daisy Permutation, they discover the most extraordinary similarities between the structures of each body. Prime Suspects is a graphic novel that takes you on a voyage of forensic discovery, exploring some of the most fundamental ideas in mathematics. Travel with Detective von Neumann as he leaves no clue unturned, from shepherds' huts in the Pyrenees to secret societies in the cafés of Paris, from the hidden codes in the music of the stones to the grisly discoveries in Finite Fields. Tremble at the ferocity of the believers in deep and rigid abstraction. Feel the frustration—and the excitement—of our young heroine, Emmy Germain, as she blazes a trail for women in mathematical research and learns from Professor Gauss, the greatest forensic detective of them all. Beautifully drawn and exquisitely detailed, Prime Suspects is unique, astonishing, and witty—a once-in-a-lifetime opportunity to experience mathematics like never before.

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## THE COMPUTER AS CRUCIBLE

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## AN INTRODUCTION TO EXPERIMENTAL MATHEMATICS

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*CRC Press* **Keith Devlin and Jonathan Borwein, two well-known mathematicians with expertise in different mathematical specialties but with a common interest in experimentation in mathematics, have joined forces to create this introduction to experimental mathematics. They cover a variety of topics and examples to give the reader a good sense of the current sta**

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## HOW TO BAKE PI

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## AN EDIBLE EXPLORATION OF THE MATHEMATICS OF MATHEMATICS

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What is math? How exactly does it work? And what do three siblings trying to share a cake have to do with it? In *How to Bake Pi*, math professor Eugenia Cheng provides an accessible introduction to the logic and beauty of mathematics, powered, unexpectedly, by insights from the kitchen. We learn how the béchamel in a lasagna can be a lot like the number five, and why making a good custard proves that math is easy but life is hard. At the heart of it all is Cheng's work on category theory, a cutting-edge "mathematics of mathematics," that is about figuring out how math works. Combined with her infectious enthusiasm for cooking and true zest for life, Cheng's perspective on math is a funny journey through a vast territory no popular book on math has explored before. So, what is math? Let's look for the answer in the kitchen.

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## MATHEMATICAL MINDSETS

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## UNLEASHING STUDENTS' POTENTIAL THROUGH CREATIVE MATH, INSPIRING MESSAGES AND INNOVATIVE TEACHING

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*John Wiley & Sons* **Banish math anxiety and give students of all ages a clear roadmap to success** *Mathematical Mindsets* provides practical strategies and activities to help teachers

and parents show all children, even those who are convinced that they are bad at math, that they can enjoy and succeed in math. Jo Boaler—Stanford researcher, professor of math education, and expert on math learning—has studied why students don't like math and often fail in math classes. She's followed thousands of students through middle and high schools to study how they learn and to find the most effective ways to unleash the math potential in all students. There is a clear gap between what research has shown to work in teaching math and what happens in schools and at home. This book bridges that gap by turning research findings into practical activities and advice. Boaler translates Carol Dweck's concept of 'mindset' into math teaching and parenting strategies, showing how students can go from self-doubt to strong self-confidence, which is so important to math learning. Boaler reveals the steps that must be taken by schools and parents to improve math education for all. **Mathematical Mindsets: Explains how the brain processes mathematics learning Reveals how to turn mistakes and struggles into valuable learning experiences Provides examples of rich mathematical activities to replace rote learning Explains ways to give students a positive math mindset Gives examples of how assessment and grading policies need to change to support real understanding Scores of students hate and fear math, so they end up leaving school without an understanding of basic mathematical concepts. Their evasion and departure hinders math-related pathways and STEM career opportunities. Research has shown very clear methods to change this phenomena, but the information has been confined to research journals—until now. Mathematical Mindsets provides a proven, practical roadmap to mathematics success for any student at any age.**

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### **THE MATHEMATICAL THEORY OF TONE SYSTEMS**

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*CRC Press* **The Mathematical Theory of Tone Systems** patterns a unified theory defining the tone system in functional terms based on the principles and forms of uncertainty theory. This title uses geometrical nets and other measures to study all classes of used and theoretical tone systems, from Pythagorean tuning to superparticular pentatonics. Hundreds of examples of past and prevalent tone systems are featured. Topics include Fuzziness and Sonance, Wavelets and Nonspecificity, Pitch Granulation and Ambiguity, Equal Temperaments, Mean Tone Systems. Well Tempered Systems, Ptolemy Systems, and more. Appendices include extended lists of tone systems and a catalogue of historical organs with subsemitones.

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### **THE PRINCIPLES OF MATHEMATICS**

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*W. W. Norton & Company* **Russell's classic The Principles of Mathematics** sets forth his landmark thesis that mathematics and logic are identical--that what is commonly called mathematics is simply later deductions from logical premises.

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### **ZERO SUM GAME**

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*Tor Books* **ZERO SUM GAME** Best of Lists: \* Best Books of the Month at The Verge, Book Riot, Unbound Worlds, SYFY, & Kirkus \* The Mary Sue Book Club Pick \* Library Journal Best Debuts of Fall and Winter A blockbuster, near-future science fiction thriller, S.L. Huang's *Zero Sum Game* introduces a math-genius mercenary who finds herself being manipulated by someone possessing unimaginable power... Cas Russell is good at math. Scary good. The vector calculus blazing through her head lets her smash through armed men twice her size and dodge every bullet in a gunfight, and she'll take any job for the right price. As far as Cas knows, she's the only person around with a superpower...until she discovers someone with a power even more dangerous than her own. Someone who can reach directly into people's minds and twist their brains into Moebius strips. Someone intent on becoming the world's puppet master. Cas should run, like she usually does, but for once she's involved. There's only one problem... She doesn't know which of her thoughts are her own anymore. "Fresh and exciting... a great start to an exciting series--and an exciting career." --Boing Boing At the Publisher's request, this title is being sold without Digital Rights Management Software (DRM) applied.

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### **PHILOSOPHY AND THE NOVEL**

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*OUP Oxford* **Alan H. Goldman** presents an original and lucid account of the relationship between philosophy and the novel. In the first part, on philosophy of novels, he defends theories of literary value and interpretation. Literary value, the value of literary works as such, is a species of aesthetic value. Goldman argues that works have aesthetic value when they simultaneously engage all our mental capacities: perceptual, cognitive, imaginative, and emotional. This view contrasts with now prevalent narrower formalist views of literary value. According to it, cognitive engagement with novels includes appreciation of their broad themes and the theses these imply, often moral and hence philosophical theses, which are therefore part of the novels' literary value. Interpretation explains elements of works so as to allow readers maximum appreciation, so as to maximize the literary value of the texts as written. Once more, Goldman's view contrasts with narrower views of literary interpretation, especially those which limit it to uncovering what authors intended. One

implication of Goldman's broader view is the possibility of incompatible but equally acceptable interpretations, which he explores through a discussion of rival interpretations of Ernest Hemingway's *The Sun Also Rises*. Goldman goes on to test the theory of value by explaining the immense appeal of good mystery novels in its terms. The second part of the book, on philosophy in novels, explores themes relating to moral agency—moral development, motivation, and disintegration—in Jane Austen's *Pride and Prejudice*, Mark Twain's *Huckleberry Finn*, John Irving's *The Cider House Rules*, and Joseph Conrad's *Nostromo*. By narrating the course of characters' lives, including their inner lives, over extended periods, these novels allow us to vicariously experience the characters' moral progressions, positive and negative, to learn in a more focused way moral truths, as we do from real life experiences.

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### **AN INVITATION TO ABSTRACT MATHEMATICS**

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*Springer Science & Business Media* This undergraduate textbook is intended primarily for a transition course into higher mathematics, although it is written with a broader audience in mind. The heart and soul of this book is problem solving, where each problem is carefully chosen to clarify a concept, demonstrate a technique, or to enthuse. The exercises require relatively extensive arguments, creative approaches, or both, thus providing motivation for the reader. With a unified approach to a diverse collection of topics, this text points out connections, similarities, and differences among subjects whenever possible. This book shows students that mathematics is a vibrant and dynamic human enterprise by including historical perspectives and notes on the giants of mathematics, by mentioning current activity in the mathematical community, and by discussing many famous and less well-known questions that remain open for future mathematicians. Ideally, this text should be used for a two semester course, where the first course has no prerequisites and the second is a more challenging course for math majors; yet, the flexible structure of the book allows it to be used in a variety of settings, including as a source of various independent-study and research projects.

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### **THE SHAPING OF DEDUCTION IN GREEK MATHEMATICS**

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### **A STUDY IN COGNITIVE HISTORY**

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*Cambridge University Press* An examination of the emergence of the phenomenon of deductive argument in classical Greek mathematics.

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### **GOD CREATED THE INTEGERS**

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### **THE MATHEMATICAL BREAKTHROUGHS THAT CHANGED HISTORY**

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*Running Press* Bestselling author and physicist Stephen Hawking explores the "masterpieces" of mathematics, 25 landmarks spanning 2,500 years and representing the work of 15 mathematicians, including Augustin Cauchy, Bernard Riemann, and Alan Turing. This extensive anthology allows readers to peer into the mind of genius by providing them with excerpts from the original mathematical proofs and results. It also helps them understand the progression of mathematical thought, and the very foundations of our present-day technologies. Each chapter begins with a biography of the featured mathematician, clearly explaining the significance of the result, followed by the full proof of the work, reproduced from the original publication.

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### **APEIROGON: A NOVEL**

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*Random House* **NEW YORK TIMES BESTSELLER** • "A quite extraordinary novel. Colum McCann has found the form and voice to tell the most complex of stories, with an unexpected friendship between two men at its powerfully beating heart."—Kamila Shamsie, author of *Home Fire* **FINALIST FOR THE DUBLIN LITERARY AWARD** • **ONGLISTED FOR THE BOOKER PRIZE** • **WINNER OF THE NATIONAL JEWISH BOOK AWARD** • **NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The Independent** • **The New York Public Library** • **Library Journal** From the National Book Award-winning and bestselling author of *Let the Great World Spin* comes an epic novel rooted in the unlikely real-life friendship between two fathers. Bassam Aramin is Palestinian. Rami Elhanan is Israeli. They inhabit a world of conflict that colors every aspect of their lives, from the roads they are allowed to drive on to the schools their children attend to the checkpoints, both physical and emotional, they must negotiate. But their lives, however circumscribed, are upended one after the other: first, Rami's thirteen-year-old daughter, Smadar, becomes the victim of suicide bombers; a decade later, Bassam's ten-year-old daughter, Abir, is killed by a rubber bullet. Rami and Bassam had been raised to hate one another. And yet, when they learn of each other's stories, they recognize the loss that connects them. Together they attempt to use their grief as a weapon for peace—and with their one small act, start to permeate what has for generations seemed an impermeable conflict. This extraordinary novel is the fruit of a seed planted when the

novelist Colum McCann met the real Bassam and Rami on a trip with the non-profit organization Narrative 4. McCann was moved by their willingness to share their stories with the world, by their hope that if they could see themselves in one another, perhaps others could too. With their blessing, and unprecedented access to their families, lives, and personal recollections, McCann began to craft *Apeirogon*, which uses their real-life stories to begin another—one that crosses centuries and continents, stitching together time, art, history, nature, and politics in a tale both heartbreaking and hopeful. The result is an ambitious novel, crafted out of a universe of fictional and nonfictional material, with these fathers' moving story at its heart.

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## PROOFS FROM THE BOOK

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*Springer Science & Business Media* 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.

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## MODERNISM AND PHYSICAL ILLNESS

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### SICK BOOKS

*Oxford University Press* T. S. Eliot memorably said that separation of the man who suffers from the mind that creates is the root of good poetry. This book argues that this is wrong. Beginning from Virginia Woolf's 'On Being Ill', it demonstrates that modernism is, on the contrary, invested in physical illness as a subject, method, and stylizing force. Experience of physical ailments, from the fleeting to the fatal, the familiar to the unusual, structures the writing of the modernists, both as sufferers and onlookers. Illness reorients the relation to, and appearance of, the world, making it appear newly strange; it determines the character of human interactions and models of behaviour. As a topic, illness requires new ways of writing and thinking, altered ideas of the subject, and a re-examination of the roles of invalids and carers. This book reads the work five authors, who are also known for their illness, hypochondria, or medical work: D. H. Lawrence, Virginia Woolf, T. S. Eliot, Dorothy Richardson, and Winifred Holtby. It overturns the assumption that illness is a simple obstacle to creativity and instead argues that it is a subject of careful thought and cultural significance.

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## CARTESIAN METHOD AND THE PROBLEM OF REDUCTION

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### AN INTRODUCTION TO MATHEMATICAL MODELING

*Courier Corporation* Accessible text features over 100 reality-based examples pulled from the science, engineering, and operations research fields. Prerequisites: ordinary differential equations, continuous probability. Numerous references. Includes 27 black-and-white figures. 1978 edition.

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### AN INTRODUCTION TO MATHEMATICAL REASONING

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### NUMBERS, SETS AND FUNCTIONS

*Cambridge University Press* This book eases students into the rigors of university mathematics. The emphasis is on understanding and constructing proofs and writing clear mathematics. The author achieves this by exploring set theory, combinatorics, and number theory, topics that include many fundamental ideas and may not be a part of a young mathematician's toolkit. This material illustrates how familiar ideas can be formulated rigorously, provides examples demonstrating a wide range of basic methods of proof, and includes some of the all-time-great classic proofs. The book presents mathematics as a continually developing subject. Material meeting the needs of readers from a wide range of backgrounds is included. The over 250 problems include questions to interest and challenge the most able student but also plenty of routine exercises to help familiarize the reader with the basic ideas.

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### MATHEMATICAL WRITING

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*Cambridge University Press* This book will help those wishing to teach a course in technical writing, or who wish to write themselves.