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Ace your curriculum and assessments with these ultimate memory techniques Retaining information can be hard, especially when you have so many things to focus on-your homework, the rigorous school syllabus and the ever-dreaded competitive exams. Today, students just have too much to learn! This book will serve as a handbook for you to memorize information, topics and answers from your course of study. Using memory-enhancing practices and techniques along with tips, activities and practice sections, you can train your brain to retain a wide range of topics and subjects. From the periodic table to trigonometry, history dates to countries and their capitals, master it all with these practical techniques, supported by some quirky and fun artwork that serves as a great visual aid. Anyone familiar with numbers, circles, straight lines and squares can become a mathematician. 'All you have to do,' claims David Wells, 'is to learn to look at these objects with some insight and imagination, maybe do a few experiments, and be able to draw reasonable conclusions…'This entertaining and informative introduction to mathematics begins with the secrets of triangles and the dazzling patterns formed by even the simplest numbers. It examines polyhedral cheeses, reverse Koch snowflakes and Rabbi Moses' box, takes readers on 'a journey from the Greek mathematicians to quantum theory' and concludes with a challenging adventure game. Nicolas Bourbaki, whose mathematical publications began to appear in the late 1930s and continued to be published through most of the twentieth century, was a direct product as well as a major force behind an important revolution that took place in the early decades of the twentieth century that completely changed Western culture. Pure mathematics, the area of Bourbaki's work, seems on the surface to be an abstract field of human study with no direct connection with the real world. In reality, however, it is closely intertwined with the general culture that surrounds it. Major developments in mathematics have often followed important trends in popular culture; developments in mathematics have acted as harbingers of change in the surrounding human culture. The seeds of change, the beginnings of the revolution that swept the Western world in the early decades of the twentieth century — both in mathematics and in other areas — were sown late in the previous century. This is the story both of Bourbaki and the world that created him in that time. It is the story of an elaborate intellectual joke — because Bourbaki, one of the foremost mathematicians of his day — never existed. This playful preschool math activity book will unleash your child's curiosity as they play their way through 20 fantastic math projects. Each easy step-by-step activity is hands-on and practical to encourage budding mathematicians to use their senses. Look I'm A Mathematician explores essential math topics to get children prepared for school - the perfect math book for kids ages 3 to 6. Look I'm A Mathematician is full of activities to show young readers just how much fun math can be! Children will discover that math has a part in everything in the world and that they already have the tools they need to become magical mathematicians - a curious mind, unlimited imagination, and super senses. A great introduction to learning math, this book teaches kids the magic of numbers through play with number bugs, creating a hungry adding robot, learning about subtraction by playing skittles, crafting 3D shape aliens, and even making a repeating pattern fruit wand. Covering a comprehensive range of math topics, from counting and numbers to shape and size, and measurements and time, this is the perfect first math book for children. Every fun project features a mixture of bright photography and charming illustrations that support the easy-to-follow activity instructions. These creative hands-on activities support classroom math taught in schools. Look I'm A

Mathematician allows little readers to do what they do best - imagine, create, learn, problem-solve, and play their way to math magic! Try Out Amazing Projects! You don't need a fancy calculator or a whiteboard full of big numbers to be a mathematician. You already have everything you need - your amazing brain and your senses! Look I'm A Mathematician is full of puzzles to solve, things to work out, and brain teasers. This educational book is full of fun math activities for kids like: - A math treasure hunt - Making shape aliens - Measuring things - Clever counting - And much, much more! DK's Look! I'm Learning series of exciting and educational STEM books, focus on the sensory experience of practical learning and play. Hands-on learning experiences tap straight into kids' insatiable curiosity and sense of wonder. These books for children are perfect for ages 3 – 6, formatted with a padded cover and toddler-tough pages. The series encourages children to develop independence and improves their critical thinking, investigation skills, and motor skills. Try the other titles in the series next, including Look I'm A Cook, Look I'm A Scientist, and Look I'm An Engineer. Mia loves counting, calculating, and trying to figure out the world around her. Numbers jump out all around her, and she is fascinated by problem solving. She doesn't act like the other kids her age. Will this cause her to be lonely, or will this open up the door of discovery for Mia? Looking for a head start in your undergraduate degree in mathematics? Maybe you've already started your degree and feel bewildered by the subject you previously loved? Don't panic! This friendly companion will ease your transition to real mathematical thinking. Working through the book you will develop an arsenal of techniques to help you unlock the meaning of definitions, theorems and proofs, solve problems, and write mathematics effectively. All the major methods of proof - direct method, cases, induction, contradiction and contrapositive - are featured. Concrete examples are used throughout, and you'll get plenty of practice on topics common to many courses such as divisors, Euclidean algorithms, modular arithmetic, equivalence relations, and injectivity and surjectivity of functions. The material has been tested by real students over many years so all the essentials are covered. With over 300 exercises to help you test your progress, you'll soon learn how to think like a mathematician. SKILLS THAT BUILD is a series that guides parents and educators to develop a child's essential life skills through activities that reinforce each skill in a fun and engaging way! Scare the spectre of mathematics away and develop mathematical thinking in a fun setting! Many grow up fearing the maths taught in school, which seems like a set of dull, tricky and timeconsuming rules. This is primarily because we are not taught to apply the tools of mathematics to understand the world. Being a Mathematician empowers a child by helping to develop winning-edge mathematical thinking instead of focussing solely on the rote learning of rules in order to solve math problems. The creative activities included in the book are uniquely designed to help exercise, nurture and enhance a child's ability to think mathematically. Effectively, this becomes a lifelong skill that ensures success. What's more: fun activities designed to run parallel to school curricula, engaging young minds in a much more interactive manner. From imaginary numbers to the fourth dimension and beyond, mathematics has always been about imagining things that seem impossible at first glance. In x+y, Eugenia Cheng draws on the insights of higher-dimensional mathematics to reveal a transformative new way of talking about the patriarchy, mansplaining and sexism: a way that empowers all of us to make the world a better place. Using precise mathematical reasoning to uncover everything from the sexist assumptions that make society a harder place for women to live to the limitations of science and statistics in helping us understand the link between gender and society, Cheng's analysis replaces confusion with clarity, brings original thinking to well worn arguments - and provides a radical, illuminating and liberating new way of thinking about the world and women's place in it. Most philosophers of mathematics treat it as isolated, timeless, ahistorical, inhuman. Reuben Hersh argues the contrary, that mathematics must be understood as a human activity, a social phenomenon, part of human culture, historically evolved, and intelligible only in a social context. Hersh pulls the screen back to reveal mathematics as seen by professionals, debunking many mathematical myths, and demonstrating how the "humanist" idea of the nature of mathematics more closely resembles how mathematicians actually work. At the heart of his book is a fascinating historical account of the mainstream of philosophy--ranging from Pythagoras,

Descartes, and Spinoza, to Bertrand Russell, David Hilbert, and Rudolph Carnap--followed by the mavericks who saw mathematics as a human artifact, including Aristotle, Locke, Hume, Mill, and Lakatos. What is Mathematics, Really? reflects an insider's view of mathematical life, and will be hotly debated by anyone with an interest in mathematics or the philosophy of science. Using proven techniques, this volume shows how to add, subtract, multiply and divide faster than is possible with a calculator or pencil and paper, and helps readers conquer their nervousness about math. This book prepares students for the more abstract mathematics courses that follow calculus. The author introduces students to proof techniques, analyzing proofs, and writing proofs of their own. It also provides a solid introduction to such topics as relations, functions, and cardinalities of sets, as well as the theoretical aspects of fields such as number theory, abstract algebra, and group theory. "One of the best critiques of current mathematics education I have ever seen."—Keith Devlin, math columnist on NPR's Morning Edition A brilliant research mathematician who has devoted his career to teaching kids reveals math to be creative and beautiful and rejects standard anxiety-producing teaching methods. Witty and accessible, Paul Lockhart's controversial approach will provoke spirited debate among educators and parents alike and it will alter the way we think about math forever. Paul Lockhart, has taught mathematics at Brown University and UC Santa Cruz. Since 2000, he has dedicated himself to K-12 level students at St. Ann's School in Brooklyn, New York. Mathematics is an integral part of our life but many of us think of it only as a subject to be studied in school or college. In this book, Aditi and Sudhir Singhal, renowned maths educators, demystify mathematical principles and outline fascinating, fun and easy-to-learn techniques to excel in this field. Divided into two parts, How to Be a Mathemagician is a double-sided book (flip the book around to switch between sections!) that packs twice the punch, with one section containing tricks and delightful activities, and the other stimulating problem-solving steps to simplify calculations, quirky maths facts and much more. Meant for all age groups-students, teachers and parents alike, How to Be a Mathemagician will make you fall in love with the world of numbers. This volume comprises an imaginative collection of pieces created in tribute to Martin Gardner. Perhaps best known for writing Scientific American's "Mathematical Games" column for years, Gardner used his personal exuberance and fascination with puzzles and magic to entice a wide range of readers into a world of mathematical discovery. This tribute These simple math secrets and tricks will forever change how you look at the world of numbers. Secrets of Mental Math will have you thinking like a math genius in no time. Get ready to amaze your friends—and yourself—with incredible calculations you never thought you could master, as renowned "mathemagician" Arthur Benjamin shares his techniques for lightning-quick calculations and amazing number tricks. This book will teach you to do math in your head faster than you ever thought possible, dramatically improve your memory for numbers, and—maybe for the first time—make mathematics fun. Yes, even you can learn to do seemingly complex equations in your head; all you need to learn are a few tricks. You'll be able to quickly multiply and divide triple digits, compute with fractions, and determine squares, cubes, and roots without blinking an eye. No matter what your age or current math ability, Secrets of Mental Math will allow you to perform fantastic feats of the mind effortlessly. This is the math they never taught you in school. This playful preschool math activity book will unleash your child's curiosity as they play their way through 20 fantastic math projects. Each easy step-by-step activity is hands-on and practical to encourage budding mathematicians to use their senses. Look I'm A Mathematician explores essential math topics to get children prepared for school - the perfect math book for kids ages 3 to 6. Look I'm A Mathematician is full of activities to show young readers just how much fun math can be! Children will discover that math has a part in everything in the world and that they already have the tools they need to become magical mathematicians - a curious mind, unlimited imagination, and super senses. A great introduction to learning math, this book teaches kids the magic of numbers through play with number bugs, creating a hungry adding robot, learning about subtraction by playing skittles, crafting 3D shape aliens, and even making a repeating pattern fruit wand. Covering a comprehensive range of math topics, from counting and numbers to shape and size, and measurements and time, this is the perfect first math book for children. Every fun project features

a mixture of bright photography and charming illustrations that support the easy-to-follow activity instructions. These creative hands-on activities support classroom math taught in schools. Look I'm A Mathematician allows little readers to do what they do best - imagine, create, learn, problem-solve, and play their way to math magic! Try Out Amazing Projects! You don't need a fancy calculator or a whiteboard full of big numbers to be a mathematician. You already have everything you need - your amazing brain and your senses! Look I'm A Mathematician is full of puzzles to solve, things to work out, and brain teasers. This educational book is full of fun math activities for kids like: - A math treasure hunt - Making shape aliens - Measuring things - Clever counting - And much, much more! DK's Look! I'm Learning series of exciting and educational STEM books, focus on the sensory experience of practical learning and play. Hands-on learning experiences tap straight into kids' insatiable curiosity and sense of wonder. These books for children are perfect for ages 3 - 6, formatted with a padded cover and toddler-tough pages. The series encourages children to develop independence and improves their critical thinking, investigation skills, and motor skills. Try the other titles in the series next, including Look I'm A Cook, Look I'm A Scientist, and Look I'm An Engineer. With almost 5 million copies sold 60 years after its original publication, generations of readers have now journeyed with Milo to the Lands Beyond in this beloved classic. Enriched by Jules Feiffer's splendid illustrations, the wit, wisdom, and wordplay of Norton Juster's offbeat fantasy are as beguiling as ever. "Comes up bright and new every time I read it . . . it will continue to charm and delight for a very long time yet. And teach us some wisdom, too." --Phillip Pullman For Milo, everything's a bore. When a tollbooth mysteriously appears in his room, he drives through only because he's got nothing better to do. But on the other side, things seem different. Milo visits the Island of Conclusions (you get there by jumping), learns about time from a ticking watchdog named Tock, and even embarks on a quest to rescue Rhyme and Reason. Somewhere along the way, Milo realizes something astonishing. Life is far from dull. In fact, it's exciting beyond his wildest dreams! Presents mathematical shortcut and "how to develop a calculator in your head." Did you know that it's easier to add and subtract from left to right, rather than the other way round? And that you can be taught to square a three-digit number in seconds? In Think Like A Maths Genius, two mathematicians offer tips and tricks for doing tricky maths the easy way. With their help, you can learn how to perform lightning calculations in your head, discover methods of incredible memorisation and other feats of mental agility. Learn maths secrets for the real world, from adding up your shopping and calculating a restaurant tip, to figuring out gambling odds (or how much you've won) and how to solve sudoku faster. 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. Can we really memorize anything? The answer is, 'Yes we can!' From Guinness World Record holders (for conducting the largest maths class on memorizing times tables till 99) Aditi Singhal and Sudhir Singhal comes a book that will serve as a manual to explore the immense power of your memory through a scientific yet simple approach. It will: • Explain concepts with simple illustrations • While teaching you memory techniques, it will also discuss their application in real life, like memorizing appointments, presentations, names and faces, long answers, spellings, formulae, vocabulary, foreign languages and general information • Give the scientific interpretation of ancient memory-enhancing practices that will be particularly useful for students, teachers, professors, doctors, managers, marketing and other professionals as well as the common man Following the unparalleled success of How to Become a Human Calculator, Aditi Singhal and Sudhir Singhal turn their hands to helping you master the right method to input any information using which you can easily memorize anything and, more important, recall it whenever required. Sir Tzyphyr is no ordinary Wizard—he knows mathemagic, the spell of numbers. It gives him a power greater than ordinary magic ever could. With him, the twins Megha and Mehul set off on a series of adventures to explore the fascinating world of numbers. They learn how numbers are used to measure, count and set things in order. What is the largest number less than 1? If x and y are any of two different positive numbers, which is larger, $x^2 + y^2$ or $2xy$? What do you get if you cross a cube and an octahedron? Discover the surprising answers as

David Wells conclusively proves that: you Are a mathematician Praise for David Wells's The Penguin Dictionary of Curious and Interesting Numbers. "This is a fascinating, strange, and probably unique book, one that I will look at again and again. As soon as I had taken a good look at it, I went out and bought three more copies to give to friends." —New Scientist. "David Wells's book about curious and interesting numbers is a quirky classic." —William Dunham Author, Journey Through Genius. Are you on friendly terms with numbers? You will be after reading this delightful introduction to the fascinating and challenging world of mathematics. Bestselling author David Wells, a Cambridge math scholar and former teacher, explores the many patterns, properties —and problems —associated with numbers in a witty, thoroughly engaging style that is both entertaining and informative. Whether you are a math aficionado or whether you, as the author puts it, "panic and start sweating at the sight of a sum," Wells makes one point abundantly clear: You Are a Mathematician. From basic arithmetic to algebraic equations, from the purely practical to the abstract, this is an ideal guide to the potential and pleasures of math. Surprising patterns emerge from the simplest groupings of numbers. The many secrets hidden inside of triangles are revealed, as are the origins of a host of mathematical theories and principles, from Aristotle to Euclid and Galileo. On a journey from the ancient Greeks to quantum theory, Wells shares intriguing anecdotes from history, such as how eighteenth-century European military commanders calculated how many cannonballs their enemies had stacked up next to their cannons. David Wells invites us to discover the sense of wonder and fun that is so much a part of mathematics. Mathematical thinking is often very much like a game, relying on cunning tactics, deep strategy, and brilliant combinations as much as on observation, analogy, and informed guesswork. To illustrate, Wells includes over 100 brainteasing puzzles and problems, ranging from Ptolemy's theorem to Euler's famous solution to the Königsberg bridge problem and Koch's snowflake curve. Modern-day computer buffs will also enjoy the underground classic, the Game of Life, invented by Princeton mathematician John Conway. Offering a comprehensive and stimulating look at the myriad aspects of mathematics —whether as a household helper or an invaluable tool of science —You Are a Mathematician covers a wide range of topics and applications. It is an ideal guide to the potential and pleasures to be found in math. "Magical Mathematics reveals the secrets of amazing, fun-to-perform card tricks--and the profound mathematical ideas behind them--that will astound even the most accomplished magician. Persi Diaconis and Ron Graham provide easy, step-by-step instructions for each trick, explaining how to set up the effect and offering tips on what to say and do while performing it. Each card trick introduces a new mathematical idea, and varying the tricks in turn takes readers to the very threshold of today's mathematical knowledge. For example, the Gilbreath principle--a fantastic effect where the cards remain in control despite being shuffled--is found to share an intimate connection with the Mandelbrot set. Other card tricks link to the mathematical secrets of combinatorics, graph theory, number theory, topology, the Riemann hypothesis, and even Fermat's last theorem. Diaconis and Graham are mathematicians as well as skilled performers with decades of professional experience between them. In this book they share a wealth of conjuring lore, including some closely guarded secrets of legendary magicians. Magical Mathematics covers the mathematics of juggling and shows how the I Ching connects to the history of probability and magic tricks both old and new. It tells the stories--and reveals the best tricks--of the eccentric and brilliant inventors of mathematical magic. Magical Mathematics exposes old gambling secrets through the mathematics of shuffling cards, explains the classic street-gambling scam of three-card monte, traces the history of mathematical magic back to the thirteenth century and the oldest mathematical trick--and much more"- The world's greatest mental mathematical magician takes us on a spellbinding journey through the wonders of numbers (and more) "Arthur Benjamin . . . joyfully shows you how to make nature's numbers dance." -- Bill Nye (the science guy) The Magic of Math is the math book you wish you had in school. Using a delightful assortment of examples-from ice-cream scoops and poker hands to measuring mountains and making magic squares-this book revels in key mathematical fields including arithmetic, algebra, geometry, and calculus, plus Fibonacci numbers, infinity, and, of course, mathematical magic tricks. Known throughout the world as the "mathemagician," Arthur Benjamin

mixes mathematics and magic to make the subject fun, attractive, and easy to understand for math fan and math-phobic alike. "A positively joyful exploration of mathematics." -- Publishers Weekly, starred review "Each [trick] is more dazzling than the last." -- Physics World The true story that inspired the 2020 film. The autobiography of mathematician Stanislaw Ulam, one of the great scientific minds of the twentieth century, tells a story rich with amazingly prophetic speculations and peppered with lively anecdotes. As a member of the Los Alamos National Laboratory from 1944 on, Ulam helped to precipitate some of the most dramatic changes of the postwar world. He was among the first to use and advocate computers for scientific research, originated ideas for the nuclear propulsion of space vehicles, and made fundamental contributions to many of today's most challenging mathematical projects. With his wide-ranging interests, Ulam never emphasized the importance of his contributions to the research that resulted in the hydrogen bomb. Now Daniel Hirsch and William Mathews reveal the true story of Ulam's pivotal role in the making of the "Super," in their historical introduction to this behind-the-scenes look at the minds and ideas that ushered in the nuclear age. An epilogue by Françoise Ulam and Jan Mycielski sheds new light on Ulam's character and mathematical originality. G. H. Hardy was one of this century's finest mathematical thinkers, renowned among his contemporaries as a 'real mathematician ... the purest of the pure'. He was also, as C. P. Snow recounts in his Foreword, 'unorthodox, eccentric, radical, ready to talk about anything'. This 'apology', written in 1940 as his mathematical powers were declining, offers a brilliant and engaging account of mathematics as very much more than a science; when it was first published, Graham Greene hailed it alongside Henry James's notebooks as 'the best account of what it was like to be a creative artist'. C. P. Snow's Foreword gives sympathetic and witty insights into Hardy's life, with its rich store of anecdotes concerning his collaboration with the brilliant Indian mathematician Ramanujan, his aphorisms and idiosyncrasies, and his passion for cricket. This is a unique account of the fascination of mathematics and of one of its most compelling exponents in modern times. An awesome, globe-spanning, and New York Times bestselling journey through the beauty and power of mathematics What if you had to take an art class in which you were only taught how to paint a fence? What if you were never shown the paintings of van Gogh and Picasso, weren't even told they existed? Alas, this is how math is taught, and so for most of us it becomes the intellectual equivalent of watching paint dry. In Love and Math, renowned mathematician Edward Frenkel reveals a side of math we've never seen, suffused with all the beauty and elegance of a work of art. In this heartfelt and passionate book, Frenkel shows that mathematics, far from occupying a specialist niche, goes to the heart of all matter, uniting us across cultures, time, and space. Love and Math tells two intertwined stories: of the wonders of mathematics and of one young man's journey learning and living it. Having braved a discriminatory educational system to become one of the twenty-first century's leading mathematicians, Frenkel now works on one of the biggest ideas to come out of math in the last 50 years: the Langlands Program. Considered by many to be a Grand Unified Theory of mathematics, the Langlands Program enables researchers to translate findings from one field to another so that they can solve problems, such as Fermat's last theorem, that had seemed intractable before. At its core, Love and Math is a story about accessing a new way of thinking, which can enrich our lives and empower us to better understand the world and our place in it. It is an invitation to discover the magic hidden universe of mathematics. Stimulating treasury of entertaining tricks, stunts, and magical effects based on such mathematical principles and ideas as magic squares, the Fibonacci Series, Moebius strips, cycloids, topology, and more. Only simple props required: from playing cards and matches to coins. No magic or mathematical skills needed. The tradition of a publication based on the Gathering for Gardner continues with this new carefully selected and edited collection in which Martin Gardner and friends inspire and entertain. The contributors to this volume---virtually a list of Who's Who in the World of Puzzles---trace their inspiration to Martin Gardner's puzzle column in Scientifi Bestselling author and astrophysicist Mario Livio examines the lives and theories of history's greatest mathematicians to ask how—if mathematics is an abstract construction of the human mind—it can so perfectly explain the physical world. Nobel Laureate Eugene Wigner once wondered about "the unreasonable effectiveness of mathematics" in the

formulation of the laws of nature. Is God a Mathematician? investigates why mathematics is as powerful as it is. From ancient times to the present, scientists and philosophers have marveled at how such a seemingly abstract discipline could so perfectly explain the natural world. More than that—mathematics has often made predictions, for example, about subatomic particles or cosmic phenomena that were unknown at the time, but later were proven to be true. Is mathematics ultimately invented or discovered? If, as Einstein insisted, mathematics is "a product of human thought that is independent of experience," how can it so accurately describe and even predict the world around us? Physicist and author Mario Livio brilliantly explores mathematical ideas from Pythagoras to the present day as he shows us how intriguing questions and ingenious answers have led to ever deeper insights into our world. This fascinating book will interest anyone curious about the human mind, the scientific world, and the relationship between them. John Allen Paulos is a master at shedding mathematical lights on our everyday world:What exactly did Lani Guinier say about quotas?What is the probability of identifying a murderer through DNA testing?Which are the real risks to our health and which the phony ones?Employing the same fun-filled, user-friendly, and quirkily insightful approach that put Innumeracy on best-seller lists, Paulos now leads us through the pages of the daily newspaper, revealing the hidden mathematical angles of countless articles. From the Senate, the SATs, and sex to crime, celebrities, and cults, Paulos takes stories that may not seem to involve mathematics at all and demonstrates how mathematical naïtéan put readers at a distinct disadvantage.Whether he's using chaos theory to puncture economic and environmental predictions, applying logic and self-reference to clarify the hazards of spin doctoring and news compression, or employing arithmetic and common sense to give us a novel perspective on greed and relationships, Paulos never fails to entertain and enlighten.Even if you hated math in school, you'll love the numerical vignettes in this book. #1 INTERNATIONAL BESTSELLER AN ADAM SAVAGE BOOK CLUB PICK The book-length answer to anyone who ever put their hand up in math class and asked, "When am I ever going to use this in the real world?" "Fun, informative, and relentlessly entertaining, Humble Pi is a charming and very readable guide to some of humanity's all-time greatest miscalculations—that also gives you permission to feel a little better about some of your own mistakes." —Ryan North, author of How to Invent Everything Our whole world is built on math, from the code running a website to the equations enabling the design of skyscrapers and bridges. Most of the time this math works quietly behind the scenes . . . until it doesn't. All sorts of seemingly innocuous mathematical mistakes can have significant consequences. Math is easy to ignore until a misplaced decimal point upends the stock market, a unit conversion error causes a plane to crash, or someone divides by zero and stalls a battleship in the middle of the ocean. Exploring and explaining a litany of glitches, near misses, and mathematical mishaps involving the internet, big data, elections, street signs, lotteries, the Roman Empire, and an Olympic team, Matt Parker uncovers the bizarre ways math trips us up, and what this reveals about its essential place in our world. Getting it wrong has never been more fun. What do you want to be when you grow up? When Katherine Johnson was young, women weren't expected to go into the math and science fields. Johnson loved math, but she never thought she could be a mathematician. After studying math in school and teaching for a few years, she learned that the organization that would later become NASA was hiring women to complete mathematical equations. As an African American woman, Johnson had to work hard to earn the respect of her coworkers, but they soon came to rely on her brilliant calculations. Her contributions to the US space program helped send astronauts to the moon. Learn how Johnson broke barriers as a female African American mathematician. A Mathematician's Practical Guide to Mentoring Undergraduate Research is a complete how-to manual on starting an undergraduate research program. Readers will find advice on setting appropriate problems, directing student progress, managing group dynamics, obtaining external funding, publishing student results, and a myriad of other relevant issues. The authors have decades of experience and have accumulated knowledge that other mathematicians will find extremely useful. Looking for a head start in your undergraduate degree in mathematics? Maybe you've already started your degree and feel bewildered by the subject you previously loved? Don't panic! This friendly

companion will ease your transition to real mathematical thinking. Working through the book you will develop an arsenal of techniques to help you unlock the meaning of definitions, theorems and proofs, solve problems, and write mathematics effectively. All the major methods of proof - direct method, cases, induction, contradiction and contrapositive - are featured. Concrete examples are used throughout, and you'll get plenty of practice on topics common to many courses such as divisors, Euclidean algorithms, modular arithmetic, equivalence relations, and injectivity and surjectivity of functions. The material has been tested by real students over many years so all the essentials are covered. With over 300 exercises to help you test your progress, you'll soon learn how to think like a mathematician. "One of the themes of the book is how to have a fulfilling professional life. In order to achieve this goal, Krantz discusses keeping a vigorous scholarly program going and finding new challenges, as well as dealing with the everyday tasks of research, teaching, and administration." "In short, this is a survival manual for the professional mathematician - both in academics and in industry and government agencies. It is a sequel to the author's A Mathematician's Survival Guide."--BOOK JACKET. This book considers the views of participants in the process of becoming a mathematician, that is, the students and the graduates. This book investigates the people who carry out mathematics rather than the topics of mathematics. Learning is about change in a person, the development of an identity and ways of interacting with the world. It investigates more generally the development of mathematical scientists for a variety of workplaces, and includes the experiences of those who were not successful in the transition to the workplace as mathematicians. The research presented is based on interviews, observations and surveys of students and graduates as they are finding their identity as a mathematician. The book contains material from the research carried out in South Africa, Northern Ireland, Canada and Brunei as well as Australia.

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