

Magical Mathematics The Mathematical Ideas That Animate Great Magic Tricks Persi Diaconis

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Mathematical Magic Wide World Publishing

No amateur or math authority can be without this ultimate compendium of classic puzzles, paradoxes, and puzzles from America's best-loved mathematical expert. 320 line drawings.

Mathematical Magic Show Princeton University Press

A photographic exploration of mathematicians’ chalkboards “A mathematician, like a painter or poet, is a maker of patterns,” wrote the British mathematician G. H. Hardy. In Do Not Erase, photographer Jessica Wynne presents remarkable examples of this idea through images of mathematicians' chalkboards. While other fields have replaced chalkboards with whiteboards and digital presentations, mathematicians remain loyal to chalk for puzzling out their ideas and communicating their research. Wynne offers more than one hundred stunning photographs of these chalkboards, gathered from a diverse group of mathematicians around the world. The photographs are accompanied by essays from each mathematician, reflecting on their work and processes. Together, pictures and words provide an illuminating meditation on the unique relationships among mathematics, art, and creativity. The mathematicians featured in this collection comprise exciting new voices alongside established figures, including Sun-Yung Alice Chang, Alain Connes, Misha Gromov, Andre Neves, Kasso Okoudjou, Peter Shor, Christina Sormani, Terence Tao, Claire Voisin, and many others. The companion essays give insights into how the chalkboard serves as a special medium for mathematical expression. The volume also includes an introduction by the author, an afterword by New Yorker writer Alec Wilkinson, and biographical information for each contributor. Do Not Erase is a testament to the myriad ways that mathematicians use their chalkboards to reveal the conceptual and visual beauty of their discipline—shapes, figures, formulas, and conjectures created through imagination, argument, and speculation.

I Can Be a Maths Magician Bright Sky Publishing

****WINNER OF THE 2020 NOBEL PRIZE IN PHYSICS**** The Road to Reality is the most important and ambitious work of science for a generation. It provides nothing less than a comprehensive account of the physical universe and the essentials of its underlying mathematical theory. It assumes no particular specialist knowledge on the part of the reader, so that, for example, the early chapters give us the vital mathematical background to the physical theories explored later in the book. Roger Penrose's purpose is to describe as clearly as possible our present understanding of the universe and to convey a feeling for its deep beauty and philosophical implications, as well as its intricate logical interconnections. The Road to Reality is rarely less than challenging, but the book is leavened by vivid descriptive passages, as well as hundreds of hand-drawn diagrams. In a single work of colossal scope one of the world's greatest scientists has given us a complete and unrivalled guide to the glories of the universe that we all inhabit. 'Roger Penrose is the most important physicist to work in relativity theory except for Einstein. He is one of the very few people I've met in my life who, without reservation, I call a genius' Lee Smolin

Magical Mathematics Oxford University Press

A collection of poems written in the form of mathematical problems and grouped according to seasonal themes.

Mathemagic! Gill & Macmillan Ltd

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.

Fabulous Fractions World Scientific

Mathematics is a fundamental human activity that can be practised and understood in a multitude of ways; indeed, mathematical ideas themselves are far from being fixed, but are adapted and changed by their passage across periods and cultures. In this Very Short Introduction, Jacqueline Stedall explores the rich historical and cultural diversity of mathematical endeavour from the distant past to the present day. Arranged thematically, to exemplify the varied contexts in which people have learned, used, and handed on mathematics, she also includes illustrative case studies drawn from a range of times and places, including early imperial China, the medieval Islamic world, and nineteenth-century Britain. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

The Road to Reality Kids Can Press Ltd

Learn about the most important mathematical ideas, theorems, and movements in The Maths Book. Part of the fascinating Big Ideas series, this book tackles tricky topics and themes in a simple and easy to follow format. Learn about Maths in this overview guide to the subject, great for novices looking to find out more and experts wishing to refresh their knowledge alike! The Maths Book brings a fresh and vibrant take on the topic through eye-catching graphics and diagrams to immerse yourself in. This captivating book will broaden your understanding of Maths, with: - More than 85 ideas and events key to the development of mathematics - Packed with facts, charts, timelines and graphs to help explain core concepts - A visual approach to big subjects with striking illustrations and graphics throughout - Easy to follow text makes topics accessible for people at any level of understanding The Maths Book is a captivating introduction to the world's most famous theorems, mathematicians and movements, aimed at adults with an interest in the subject and students wanting to gain more of an overview. Charting the development of maths around the world from Babylon to Bletchley Park, this book explains how maths help us understand everything from patterns in nature to artificial intelligence. Your Maths Questions, Simply Explained What is an imaginary number? Can two parallel lines ever meet? How can maths help us predict the future? This engaging overview explores answers to big questions like these and how they contribute to our understanding of maths. If you thought it was difficult to learn about topics like algebra and statistics, The Maths Book presents key information in an easy to follow layout. Learn about the history of maths, from ancient ideas such as magic squares and the abacus to modern cryptography, fractals, and the final proof of Fermat's Last Theorem. The Big Ideas Series With millions of copies sold worldwide, The Maths Book is part of the award-winning Big Ideas series from DK. The series uses striking graphics along with engaging writing, making big topics easy to understand. r to understand.

Math Magic Princeton University Press

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

Mathematical Mysteries Turner Publishing Company

This clever and triumphant book takes the reader on a journey of discovery of amazing mathematical patterns, processes and ideas. The intention is to generate a sense of curiosity, of mastery, and hopefully a renewed interest in the wonderful world of numbers. That mathematics can be intriguing and fun and confidence building. So much of our traditional learning is strict and misunderstood. This book aims to put the joy back into studying mathematics. Mathematics is so central to everyone's life. It shows which careers and jobs where mathematics is crucial. Not to mention certain pastimes where math is also necessary for success. Then there are the personal reasons why math is magical. From confidence building, satisfaction and brain development. Problem solving steps used in mathematics can be transferred to other areas too. This eye opening book appeals to all ages and the hope is that everyone will read, absorb, enjoy and learn to respect those staggering things called numbers.

Mathematickles! Big Picture Press

Number tricks for children which includes Digital wizardry, mind games calculator magic and more!

The Math Behind the Magic Tabletop Academy Press

Many teachers use traditional counting and shape books in math class. But what would happen if we approached any story with a math lens? How might mathematizing children's literature give learners space to ask their own questions, and make connections between stories, their lives, and the world around them? These are the questionsauthors Allison Hintz and Antony T. Smith set out to explore in Mathematizing Children's Literature: Sparking Connections, Joy, and Wonder Through Read-Alouds and Discussion as they invite us to consider fresh ways of using interactive read-alouds to nurture students as both readers and mathematicians.Inside Mathematizing Children's Literature , you'll learn how to do the following: Select picture books according to the goals of the read aloud experiencePlan and facilitate three styles of read aloud discussions - Open Notice and Wonder, Math Lens, and Story Explore UtilizeIdea Investigations - experiences that invite students to pursue literacy and math-focused ideas beyond the pages of the read aloudConnect withstudents' families and communities through storiesAlong the way, Hintz and Smith provide a wide range of picture book suggestions and appendices that include ready-to-use lesson planning templates, a form for notes, and a bookmark of guiding questions. Mathematizing Children's Literature is a practical resource you'll find yourself referring to frequently.

The Mathematics of Infinity Cambridge University Press

'This delightful book connects mathematical concepts in a dozen areas to magic tricks. Expositions of the mathematics precede description and analysis of the tricks. The expositions are too short for in-depth learning; the intent is to give sophomores a taste of the content and ideas of later mathematics courses. Each chapter features exercises on the mathematics, and students can have fun practicing the tricks.'Mathematics MagazineTeixeira and Park present over 60 different magic tricks while introducing students to high-level math areas. Readers will learn really interesting ideas that will better prepare them for future courses and help them finding areas they might want to study deeper. And as a 'side effect' students will learn amazing magic tricks, century-old secrets, and

details from famous magicians and mathematicians. The material was written to quickly present key concepts in several mathematical areas in direct way. Little or no proficiency in math is assumed. In fact, students do not require any Calculus knowledge. And since chapters are almost independent from each other, this book also work as introduction to several other courses. Topics covered include mathematical proofs, probability, abstract algebra, linear algebra, mathematical computing, number theory, coding theory, geometry, topology, real analysis, numerical analysis and history of math.

Ten Great Ideas about Chance Springer

Math Goggles is a collection of field-tested activities for children that integrate mathematics into the world of the visual arts. Serving as the focal point for each mathematics activity is the work of a famous modern artist"Jackson Pollock, Andy Warhol, Georgie O'Keefe, and many more. After learning brief biographical and anecdotal information about the artist, the reader engages in an exploration of the mathematics embedded in the artwork by creating the featured piece of artwork in the spirit of the artist. Step-by-step instructions accompanied by color images of the artistic masterpieces as well as actual student work aid the reader in visualizing and understanding how to create the art in each activity. As the reader creates each masterpiece, mimicking the great masters, they simultaneously hone their estimation, counting, measurement, and number-sense skills while noticing, creating, and describing shapes and patterns and experimenting with symmetry and probability.

Mathematics for Human Flourishing Createspace Independent Publishing Platform

Mathematical card effects offer both beginning and experienced magicians an opportunity to entertain with a minimum of props. Featuring mostly original creations, Mathematical Card Magic: Fifty-Two New Effects presents an entertaining look at new mathematically based card tricks. Each chapter contains four card effects, generally starting with simple applications of a particular mathematical principle and ending with more complex ones. Practice a handful of the introductory effects and, in no time, you ' ll establish your reputation as a "mathemagician." Delve a little deeper into each chapter and the mathematics gets more interesting. The author explains the mathematics as needed in an easy-to-follow way. He also provides additional details, background, and suggestions for further explorations. Suitable for recreational math buffs and amateur card lovers or as a text in a first-year seminar, this color book offers a diverse collection of new mathemagic principles and effects.

Do Not Erase Pearson Higher Ed

In the sixteenth and seventeenth centuries, gamblers and mathematicians transformed the idea of chance from a mystery into the discipline of probability, setting the stage for a series of breakthroughs that enabled or transformed innumerable fields, from gambling, mathematics, statistics, economics, and finance to physics and computer science. This book tells the story of ten great ideas about chance and the thinkers who developed them, tracing the philosophical implications of these ideas as well as their mathematical impact.

Ten Magic Butterflies Courier Corporation

Enter the magical maze of mathematics and explore the surprising passageways of a fantastical world where logic and imagination converge. For mathematics is a maze—a maze in your head—a maze of ideas, a maze of logic. And that maze in your mind is a powerful tool for understanding an even bigger maze—the one of cause and effect that we call "the universe." That is its special kind of magic. Real magic. Strange magic. Infinitely fascinating magic. Acclaimed author Ian Stewart leads you swiftly and humorously through the junctions, byways, and secret passages of the magical maze to reveal its beauty, surprise, and power. Along the way, he reveals the infinite possibilities that arise from what he calls "the two-way trade between the natural world and the human mind." If you ' ve always loved mathematics, you will find endless delights in the twists and turns of The Magical Maze. If you ' ve always hated mathematics, a trip through this marvelous book will do much to change your mind.

Math and Magic in Wonderland Crown Books for Young Readers

"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 Maths Book Yale University Press

Learn at home with help from The Wonder Years/Hallmark actress, math whiz, and New York Times bestselling author Danica McKellar using her acclaimed McKellar Math books! Fairies, butterflies, and magic help to make this math-focused board book positively enchanting! Join ten flower friends for a night of excitement that mixes a little math with a lot of magic. As each flower turns into a butterfly, children will discover different ways to group numbers to create ten, an essential building block of math, all while watching each flower's dream come true. (And keep an eye out for the adorable caterpillar who wishes he could fly, too!) In this, the second book in the McKellar Math line, Danica McKellar once again sneaks in secret addition and subtraction concepts to help make your child smarter and uses her proven math success to show children that loving numbers is as easy as a wave of a wand and a BING BANG BOO! "[Danica McKellar's] bringing her love of numbers to children everywhere." --Brightly on Goodnight, Numbers "Danica McKellar is now on a mission to make math fun for even the youngest of kids." --L.A. Parent Magazine Don't Miss Even More Math Fun in Bathtime Mathtime!

Love and Math Oxford University Press

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.

The Magical Maze American Mathematical Soc.

Don't Just Learn Fractions ...Master Them! Brimming with fun and educational games and activities, the Magical Math series provides everything you need to know to become a master of mathematics! In each of these books, Lynette Long uses her own unique style to help you truly understand mathematical concepts as you play with everyday objects such as playing cards, dice, coins, and paper and pencil. Inside Fabulous Fractions, you'll find out all about fractions, from what they look like to how to write them, to the relationship between fractions and decimals, and more. While playing exciting games like Super Domino ESP and Reduce It!, you'll learn about proper fractions and how to reduce them. And with games like Combination Pizza, Fraction Jeopardy!, and three-in-a-Row-Bingo, you'll learn to add, subtract, multiply, and divide fractions while you have fun! So why wait? Jump right in and find out how easy it is to become a mathematics master!