

God Created The Integers Stephen Hawking

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Fear of Physics - Lawrence M. Krauss 2007-07-30

"Assume the cow is a sphere." So begins this lively, irreverent, and informative look at everything from the physics of boiling water to cutting-edge research at the observable limits of the universe. Rich with anecdotes and accessible examples, *Fear of Physics* nimbly ranges over the tools and thought behind the world of modern physics, taking the mystery out of what is essentially a very human intellectual endeavour.

e: The Story of a Number - Eli Maor 2011-10-12

The interest earned on a bank account, the arrangement of seeds in a sunflower, and the shape of the Gateway Arch in St. Louis are all intimately connected with the mysterious number e . In this informal and engaging history, Eli Maor portrays the curious characters and the elegant mathematics that lie behind the number. Designed for a reader with only a modest mathematical background, this biography brings out the central importance of e to mathematics and illuminates a golden era in the age of science.

Calculating the Cosmos - Ian Stewart 2016-10-25

A prize-winning popular science writer uses mathematical modeling to explain the cosmos. In *Calculating the Cosmos*, Ian Stewart presents an exhilarating guide to the cosmos, from our solar system to the entire universe. He describes the architecture of space and time, dark matter and dark energy, how galaxies form, why stars implode, how everything began, and how it's all going to end. He considers parallel universes, the fine-tuning of the cosmos for life, what forms extraterrestrial life might take, and the likelihood of life on Earth being snuffed out by an asteroid. Beginning with the Babylonian integration of mathematics into the study of astronomy and cosmology, Stewart traces the evolution of our understanding of the cosmos: How Kepler's laws of planetary motion led Newton to formulate his theory of gravity. How, two centuries later, tiny irregularities in the motion of Mars inspired Einstein to devise his general theory of relativity. How, eighty years ago, the discovery that the universe is expanding led to the development of the Big Bang theory of its

origins. How single-point origin and expansion led cosmologists to theorize new components of the universe, such as inflation, dark matter, and dark energy. But does inflation explain the structure of today's universe? Does dark matter actually exist? Could a scientific revolution that will challenge the long-held scientific orthodoxy and once again transform our understanding of the universe be on the way? In an exciting and engaging style, *Calculating the Cosmos* is a mathematical quest through the intricate realms of astronomy and cosmology.

God Is Great, God Is Good - William Lane Craig 2010-08-24

In this magisterial collection, the contemporary complaints against belief in God are addressed with intellectual passion and rigor by some of the most astute theological and philosophical minds of the day. Including an interview by Gary Habermas with noted convert to theism Antony Flew, and a direct critical response to Richard Dawkins's *God Delusion* by Alvin Plantinga, *God Is Great, God Is Good* offers convincing and compelling reassurance that though the world has changed, God has not.

A Brief History of Time - Stephen Hawking 2011-05-04

#1 NEW YORK TIMES BESTSELLER A landmark volume in science writing by one of the great minds of our time, Stephen Hawking's book explores such profound questions as: How did the universe begin—and what made its start possible? Does time always flow forward? Is the universe unending—or are there boundaries? Are there other dimensions in space? What will happen when it all ends? Told in language we all can understand, *A Brief History of Time* plunges into the exotic realms of black holes and quarks, of antimatter and "arrows of time," of the big bang and a bigger God—where the possibilities are wondrous and unexpected. With exciting images and profound imagination, Stephen Hawking brings us closer to the ultimate secrets at the very heart of creation.

Penguin Readers Level 5: Unlocking the Universe (ELT Graded Reader) - Stephen Hawking 2021-05-06

Penguin Readers is an ELT graded reader series. Please note that the eBook edition does NOT include access to the audio edition and digital book. Written for learners of English as a foreign language, each title includes carefully adapted text, new illustrations and language learning exercises. Titles include popular classics, exciting contemporary fiction, and thought-provoking non-fiction, introducing language learners to bestselling authors and compelling content. The eight levels of Penguin Readers follow the Common European Framework of Reference for language learning (CEFR). Exercises at the back of each Reader help language learners to practise grammar, vocabulary, and key exam skills. Before, during and after-reading questions test readers' story comprehension and develop vocabulary. Unlocking the Universe, a Level 5 Reader, is B1 in the CEFR framework. The text is made up of sentences with up to four clauses, introducing present perfect continuous, past perfect, reported speech and second conditional. It is well supported by illustrations, which appear regularly. Unlocking the Universe takes us on a journey through space and time. It starts 13.8 billion years ago with the Big Bang, which led to the stars, the planets and our Solar System. Then it explores our Solar System and other solar systems - the ones we know, and others we have yet to find. Visit the Penguin Readers website Register to access online resources including tests, worksheets and answer keys. Exclusively with the print edition, readers can unlock a digital book and audio edition (not available with the eBook).

Unlocking the Universe - Stephen Hawking 2020-01-09

Have you ever wondered how our universe began? Or what it takes to put humans on the moon? Do you know what happens in the microscopic world of a life-saving vaccine? What would you do if you could travel through space and time? Embark on the adventure of a lifetime in this beautiful collection of up-to-the-minute essays, mind-blowing facts and out-of-this-world colour photographs, by the world's leading scientists including Professor Stephen Hawking himself. This edition features brand-new content from Dr Mary Dobson: Plagues, Pandemics and Planetary Health. This unmissable volume was curated by Stephen and Lucy Hawking, whose series of children's books George's Secret Key was a global hit. George's stories are punctuated with fascinating real-life facts and insights from leading scientists and now this incredible non-fiction has been collected into one bumper volume, with new content from key scientific figures and up-to-the-minute facts and figures for readers in 2021. READERS LOVE UNLOCKING THE UNIVERSE: "Despite its scientific content the essays are written in a very accessible style and the many topics investigated which range from the physical explanations of the universe to earth science to robotics and future predictions. Highly recommended for curious minds from around 10 years upwards" - Sue Warren, Blogger "My 9 y.o. loves this book. We've previously discussed a lot of the concepts, but this seems to answer questions I hadn't thought

of, but my son wanted to know"

George and the Blue Moon - Stephen Hawking 2017-11-07

George and Annie are off on another cosmic adventure inspired by the Mars Expedition in the fifth book of the George's Secret Key series from Stephen and Lucy Hawking. George and his best friend, Annie, have been selected as junior astronauts for a program that trains young people for a future trip to Mars. This is everything they've ever wanted—and now they get to be a part of up-to-the minute space discoveries and meet a bunch of new friends who are as fascinated by the universe as they are. But when they arrive at space camp, George and Annie quickly learn that strange things are happening—on Earth as well as up in the skies. Mysterious space missions are happening in secret, and the astronaut training they're undertaking gets scarier and scarier...

The Grand Design - Stephen Hawking 2010-09-07

#1 NEW YORK TIMES BESTSELLER When and how did the universe begin? Why are we here? What is the nature of reality? Is the apparent "grand design" of our universe evidence of a benevolent creator who set things in motion—or does science offer another explanation? In this startling and lavishly illustrated book, Stephen Hawking and Leonard Mlodinow present the most recent scientific thinking about these and other abiding mysteries of the universe, in nontechnical language marked by brilliance and simplicity. According to quantum theory, the cosmos does not have just a single existence or history. The authors explain that we ourselves are the product of quantum fluctuations in the early universe, and show how quantum theory predicts the "multiverse"—the idea that ours is just one of many universes that appeared spontaneously out of nothing, each with different laws of nature. They conclude with a riveting assessment of M-theory, an explanation of the laws governing our universe that is currently the only viable candidate for a "theory of everything": the unified theory that Einstein was looking for, which, if confirmed, would represent the ultimate triumph of human reason.

How to Think Like Stephen Hawking - Daniel Smith 2016-05-26

A unique insight into the mind of one of the world's most extraordinary thinkers. Undoubtedly the most famous scientist on the planet and the very face of physics over the last half-century, Stephen Hawking is remarkable for many reasons. Not least because he has continued to strive to achieve so much while being hamstrung by debilitating illness. He has demonstrated categorically that if you put your mind to it, you can achieve anything, no matter your physical state. Of course, it helps if you happen to possess a mind such as his. His work on black holes put him on the map, and he became globally famous for his A Brief History of Time, communicating the most difficult scientific ideas at a period when he'd lost the ability to speak. How to Think

Like Stephen Hawking reveals the key motivations, desires and philosophies that make Hawking one of the world's most enduring talents. Studying how he overcame great adversity, fought his demons as well as his detractors and looked back to the origins of the universe, with quotes and passages by and about him, you too can learn to think like the man who claims he can think in eleven dimensions.

The Dreams That Stuff Is Made Of - Stephen Hawking 2011-10-25

“God does not play dice with the universe.” So said Albert Einstein in response to the first discoveries that launched quantum physics, as they suggested a random universe that seemed to violate the laws of common sense. This 20th-century scientific revolution completely shattered Newtonian laws, inciting a crisis of thought that challenged scientists to think differently about matter and subatomic particles. *The Dreams That Stuff Is Made Of* compiles the essential works from the scientists who sparked the paradigm shift that changed the face of physics forever, pushing our understanding of the universe on to an entirely new level of comprehension. Gathered in this anthology is the scholarship that shocked and befuddled the scientific world, including works by Niels Bohr, Max Planck, Werner Heisenberg, Max Born, Erwin Schrodinger, J. Robert Oppenheimer, Richard Feynman, as well as an introduction by today's most celebrated scientist, Stephen Hawking.

The Loom of God - Clifford A. Pickover 2009

From the mysterious cult of Pythagoras to the awesome mechanics of Stonehenge to the “gargoyles” and fractals on today's computers, mathematics has always been a powerful, even divine force in the world. In a lively, intelligent synthesis of math, mysticism, and science fiction, Clifford Pickover explains the eternal magic of numbers. Taking a uniquely humorous approach, he appoints readers “Chief Historian” of an intergalactic museum and sends them, along with a quirky cast of characters, hurtling through the ages to explore how individuals used numbers for such purposes as predicting the end of the world, finding love, and winning wars.

The Mathematics of Life - Ian Stewart 2011-06-07

Biologists have long dismissed mathematics as being unable to meaningfully contribute to our understanding of living beings. Within the past ten years, however, mathematicians have proven that they hold the key to unlocking the mysteries of our world -- and ourselves. In *The Mathematics of Life*, Ian Stewart provides a fascinating overview of the vital but little-recognized role mathematics has played in pulling back the curtain on the hidden complexities of the natural world -- and how its contribution will be even more vital in the years ahead. In his characteristically clear and entertaining fashion, Stewart explains how mathematicians and biologists have come to work together on some of the most difficult scientific problems that the human race

has ever tackled, including the nature and origin of life itself.

My Brief History - Stephen Hawking 2013-09-10

NATIONAL BESTSELLER Stephen Hawking has dazzled readers worldwide with a string of bestsellers exploring the mysteries of the universe. Now, for the first time, perhaps the most brilliant cosmologist of our age turns his gaze inward for a revealing look at his own life and intellectual evolution. *My Brief History* recounts Stephen Hawking's improbable journey, from his postwar London boyhood to his years of international acclaim and celebrity. Lavishly illustrated with rarely seen photographs, this concise, witty, and candid account introduces readers to a Hawking rarely glimpsed in previous books: the inquisitive schoolboy whose classmates nicknamed him Einstein; the jokester who once placed a bet with a colleague over the existence of a particular black hole; and the young husband and father struggling to gain a foothold in the world of physics and cosmology. Writing with characteristic humility and humor, Hawking opens up about the challenges that confronted him following his diagnosis of ALS at age twenty-one. Tracing his development as a thinker, he explains how the prospect of an early death urged him onward through numerous intellectual breakthroughs, and talks about the genesis of his masterpiece *A Brief History of Time*—one of the iconic books of the twentieth century. Clear-eyed, intimate, and wise, *My Brief History* opens a window for the rest of us into Hawking's personal cosmos.

Not Even Wrong - Peter Woit 2007-03-09

When does physics depart the realm of testable hypothesis and come to resemble theology? Peter Woit argues that string theory isn't just going in the wrong direction, it's not even science. *Not Even Wrong* shows that what many physicists call superstring “theory” is not a theory at all. It makes no predictions, not even wrong ones, and this very lack of falsifiability is what has allowed the subject to survive and flourish. Peter Woit explains why the mathematical conditions for progress in physics are entirely absent from superstring theory today, offering the other side of the story.

You Matter to God - Derek Prince 2010-04-01

In his clear and accessible signature style, Derek Prince employs his extraordinary understanding of Scripture to lay out the depth of Jesus's great love for individuals and to help them discover their worth. Using powerful biblical teachings on the parables of the Hidden Treasure and the Pearl of Great Price, Prince helps free readers from guilt, insecurity, fear, and shame, in order to help them realize how incredibly loved they are.

George and the Unbreakable Code - Stephen Hawking 2016-09-06

George and Annie must travel further into space than ever before in order to prevent all computers from being hacked.

The Drunkard's Walk - Leonard Mlodinow 2008-05-13

With the born storyteller's command of narrative and imaginative approach, Leonard Mlodinow vividly demonstrates how our lives are profoundly informed by chance and randomness and how everything from wine ratings and corporate success to school grades and political polls are less reliable than we believe. By showing us the true nature of chance and revealing the psychological illusions that cause us to misjudge the world around us, Mlodinow gives us the tools we need to make more informed decisions. From the classroom to the courtroom and from financial markets to supermarkets, Mlodinow's intriguing and illuminating look at how randomness, chance, and probability affect our daily lives will intrigue, awe, and inspire.

The Road to Reality - Roger Penrose 2021-06-09

****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

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

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

God Created The Integers - Stephen Hawking 2007-03-29

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.

Numbers - Graham Flegg 2013-05-13

Readable, jargon-free book examines the earliest endeavors to count and record numbers, initial attempts to solve problems by using equations, and origins of infinite cardinal arithmetic. "Surprisingly exciting." – Choice.

Essays on the Theory of Numbers - Richard Dedekind 1901

Great Physicists - William H. Cropper 2004-09-16

Here is a lively history of modern physics, as seen through the lives of thirty men and women from the pantheon of physics. William H. Cropper vividly portrays the life and accomplishments of such giants as Galileo and Isaac Newton, Marie Curie and Ernest Rutherford, Albert Einstein and Niels Bohr, right up to contemporary figures such as Richard Feynman, Murray Gell-Mann, and Stephen Hawking. We meet scientists--all geniuses--who could be gregarious, aloof, unpretentious, friendly, dogged, imperious, generous to colleagues or contentious rivals. As Cropper captures their personalities, he also offers vivid portraits of their great moments of discovery, their bitter feuds, their relations with family and friends, their religious beliefs and education. In addition, Cropper has grouped these biographies by discipline--mechanics, thermodynamics, particle physics, and others--each section beginning with a historical overview. Thus in the section on quantum mechanics, readers can see how the work of Max Planck influenced Niels Bohr, and how Bohr in turn influenced Werner Heisenberg. Our understanding of the physical world has increased dramatically in the last four centuries. With Great Physicists, readers can retrace the footsteps of the men and women who led the way.

Prime Obsession - John Derbyshire 2003-04-15

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 of the 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.

Why Beauty Is Truth - Ian Stewart 2007-08-02

At the heart of relativity theory, quantum mechanics, string theory, and much of modern cosmology lies one concept: symmetry. In *Why Beauty Is Truth*, world-famous mathematician Ian Stewart narrates the history of the emergence of this remarkable area of study. Stewart introduces us to such characters as the Renaissance Italian genius, rogue, scholar, and gambler Girolamo Cardano, who stole the modern method of solving cubic equations and published it in the first important book on algebra, and the young revolutionary Evariste Galois, who refashioned the whole of mathematics and founded the field of group theory only to die in a pointless duel over a woman before his work was published. Stewart also explores the strange numerology of real mathematics, in which particular numbers have unique and unpredictable properties related to symmetry. He shows how Wilhelm Killing discovered "Lie groups" with 14, 52, 78, 133, and 248 dimensions-groups whose very existence is a profound puzzle. Finally, Stewart describes the world beyond superstrings: the "octonionic" symmetries that may explain the very existence of the universe.

The Universe and the Teacup - K. C. Cole 1999

A noted science writer explores how mathematics can explain such events as the O. J. Simpson verdict and the errors undermining the infamous Bell Curve, and introduces a little-known woman without whom the theory of relativity never would have worked. Reprint. 35,000 first printing.

The Joy of Pi - David Blatner 1999-09-01

No number has captured the attention and imagination of people throughout the ages as much as the ratio of a circle's circumference to its diameter. Pi—or π as it is symbolically known—is infinite and, in *The Joy of pi*, it proves to be infinitely intriguing. With incisive historical insight and a refreshing sense of humor, David Blatner explores the many facets of pi and humankind's fascination with it—from the ancient Egyptians and Archimedes to Leonardo da Vinci and the modern-day Chudnovsky brothers, who have calculated pi to eight billion digits with a homemade supercomputer. *The Joy of Pi* is a book of many parts. Breezy narratives recount the history of pi and the quirky stories of those obsessed with it. Sidebars document fascinating pi trivia (including a segment from the O. J. Simpson trial). Dozens of snippets and factoids reveal pi's remarkable impact over the centuries. Mnemonic devices teach how to memorize pi to many hundreds of digits (or more, if you're so inclined). Pi-inspired cartoons, poems, limericks, and jokes offer delightfully "square" pi humor. And, to satisfy even the most exacting of number jocks, the first one million digits of pi appear throughout the book. A tribute to all things pi, *The Joy of pi* is sure to foster a newfound affection and respect for the big number with the funny little symbol.

The Education of a Mathematician - Philip J. Davis 2000-07-21

In this charming memoir, a renowned mathematician and winner of the American Book Award traces his career in mathematics from early lessons in horse racing and the realities of life to his adventures on the lecture circuit. A thought-provoking mix of autobiography, history, and insights into the role of mathematics in everyday life, this highly ent

Hawking on the Big Bang and Black Holes - Stephen W. Hawking 1993

Stephen Hawking, the Lucasian Professor of Mathematics at Cambridge University, has made important theoretical contributions to gravitational theory and has played a major role in the development of cosmology and black hole physics. Hawking's early work, partly in collaboration with Roger Penrose, showed the significance of spacetime singularities for the big bang and black holes. His later work has been concerned with a deeper understanding of these two issues. The work required extensive use of the two great intellectual achievements of the first half of the Twentieth Century: general relativity and quantum mechanics; and these are reflected in the reprinted articles. Hawking's key contributions on black hole radiation and the no-boundary

condition on the origin of the universe are included. The present compilation of Stephen Hawking's most important work also includes an introduction by him, which guides the reader through the major highlights of the volume. This volume is thus an essential item in any library and will be an important reference source for those interested in theoretical physics and applied mathematics. It is an excellent thing to have so many of Professor Hawking's most important contributions to the theory of black holes and space-time singularities all collected together in one handy volume. I am very glad to have them". Roger Penrose (Oxford) "This was an excellent idea to put the best papers by Stephen Hawking together. Even his papers written many years ago remain extremely useful for those who study classical and quantum gravity. By watching the evolution of his ideas one can get a very clear picture of the development of quantum cosmology during the last quarter of this century". Andrei Linde (Stanford) "This review could have been quite short: 'The book contains a selection of 21 of Stephen Hawking's most significant papers with an overview written by the author'. This w

Contributions to the Founding of the Theory of Transfinite Numbers - Georg Cantor 1911

The Theory of Everything - Stephen W. Hawking 2008

One Universe: - Charles Tsun-Chu Liu 1999-12-20

A new window opens onto the cosmos... Almost every day we are challenged by new information from the outermost reaches of space. Using straightforward language, One Universe explores the physical principles that govern the workings of our own world so that we can appreciate how they operate in the cosmos around us. Bands of color in a sunlit crystal and the spectrum of starlight in giant telescopes, the arc of a hard-hit baseball and the orbit of the moon, traffic patterns on a freeway and the spiral arms in a galaxy full of stars--they're all tied together in grand and simple ways. We can understand the vast cosmos in which we live by exploring three basic concepts: motion, matter, and energy. With these as a starting point, One Universe shows how the physical principles that operate in our kitchens and backyards are actually down-to-Earth versions of cosmic processes. The book then takes us to the limits of our knowledge, asking the ultimate questions about the origins and existence of life as we know it and where the universe came from--and where it is going. Glorious photographs--many seen for the first time in these pages--and original illustrations expand and enrich our understanding. Evocative and clearly written, One Universe explains complex ideas in ways that every reader can grasp and enjoy. This book captures the grandeur of the heavens while making us feel at home in the cosmos. Above all, it helps us realize that galaxies, stars, planets, and we ourselves all belong to One Universe.

An Imaginary Tale - Paul J. Nahin 2010-02-22

Today complex numbers have such widespread practical use--from electrical engineering to aeronautics--that few people would expect the story behind their derivation to be filled with adventure and enigma. In An Imaginary Tale, Paul Nahin tells the 2000-year-old history of one of mathematics' most elusive numbers, the square root of minus one, also known as i . He recreates the baffling mathematical problems that conjured it up, and the colorful characters who tried to solve them. In 1878, when two brothers stole a mathematical papyrus from the ancient Egyptian burial site in the Valley of Kings, they led scholars to the earliest known occurrence of the square root of a negative number. The papyrus offered a specific numerical example of how to calculate the volume of a truncated square pyramid, which implied the need for i . In the first century, the mathematician-engineer Heron of Alexandria encountered i in a separate project, but fudged the arithmetic; medieval mathematicians stumbled upon the concept while grappling with the meaning of negative numbers, but dismissed their square roots as nonsense. By the time of Descartes, a theoretical use for these elusive square roots--now called "imaginary numbers"--was suspected, but efforts to solve them led to intense, bitter debates. The notorious i finally won acceptance and was put to use in complex analysis and theoretical physics in Napoleonic times. Addressing readers with both a general and scholarly interest in mathematics, Nahin weaves into this narrative entertaining historical facts and mathematical discussions, including the application of complex numbers and functions to important problems, such as Kepler's laws of planetary motion and ac electrical circuits. This book can be read as an engaging history, almost a biography, of one of the most evasive and pervasive "numbers" in all of mathematics. Some images inside the book are unavailable due to digital copyright restrictions.

The Passage of Love - Alex Miller 2017-10-25

A thoughtful autobiographical work by an award-winning Australian novelist...traces themes of art and commitment through Crofts' relationships with three women. Miller pulls back from the narrative several times in interludes that return to the first person of the much older man and highlight how memory has many layers. A rich addition to the growing shelf of autofiction from a seasoned storyteller.' Kirkus, starred review Sitting in a New York park, an old man holds a book and tries to accept that his contribution to the future is over. Instead, he remembers a youthful yearning for open horizons, for Australia, a yearning he now knows inspired his life as a writer. Instinctively he picks up his pen and starts at the beginning... At twenty-one years, Robert Crofts leaves his broken dreams in Far North Queensland, finally stopping in Melbourne almost destitute. It's there he begins to understand how books and writing might be the saving of him. They will be how he leaves his mark on the world. He also begins to understand how many obstacles there will be to thwart his ambition.

When Robert is introduced to Lena Soren, beautiful, rich and educated, his life takes a very different path. But in the intimacy of their connection lies an unknowability that both torments and tantalises as Robert and Lena long for something that neither can provide for the other. In a rich blend of thoughtful and beautifully observed writing, the lives of a husband and wife are laid bare in their passionate struggle to engage with their individual creativity. Alex Miller is magnificent in this most personal of all novels filled with rare wisdom and incisive observation. Praise for *Coal Creek*: 'a fine achievement' - Sydney Morning Herald 'a story that will linger in your mind' - Good Reading magazine 'The intelligence of the author haunts the novel, like an atmosphere.' - Australian Book Review

George and the Big Bang - Lucy Hawking 2012-08-28

George tries to escape a host of problems by going to Switzerland to help his friend Annie's father, Eric, run an experiment exploring the origins of the universe, but faces saboteurs and a mysterious message from George's old nemesis, Reeper, there. Includes scientific essays exploring the latest theories on the origin of the universe.

Hawking Hawking - Charles Seife 2021-04-06

Stephen Hawking was widely recognized as the world's best physicist and even the most brilliant man alive—but what if his true talent was self-promotion? When Stephen Hawking died, he was widely recognized as the world's best physicist, and even its smartest person. He was neither. In *Hawking Hawking*, science journalist Charles Seife explores how Stephen Hawking came to be thought of as humanity's greatest genius. Hawking spent his career grappling with deep questions in physics, but his renown didn't rest on his science. He was a master of self-promotion, hosting parties for time travelers, declaring victory over problems he had not solved, and wooing billionaires. In a wheelchair and physically dependent on a cadre of devotees, Hawking still managed to captivate the people around him—and use them for his own purposes. A brilliant exposé and powerful biography, *Hawking Hawking* uncovers the authentic Hawking buried underneath the fake. It is the story of a man whose brilliance in physics was matched by his genius for building his own myth.

Gödel, Escher, Bach - Douglas R. Hofstadter 2000

'What is a self and how can a self come out of inanimate matter?' This is the riddle that drove Douglas Hofstadter to write this extraordinary book. In order to impart his original and personal view on the core mystery of human existence - our intangible sensation of 'I'-ness - Hofstadter defines the playful yet seemingly paradoxical notion of 'strange loop', and explicates this idea using analogies from many disciplines.

Stephen Hawking's Universe - David Filkin 1997-10-03

Examines the efforts of Stephen Hawking and other scientists to understand the mysteries and origins of the universe

Why Science Does Not Disprove God - Amir Aczel 2014-04-15

The renowned science writer, mathematician, and bestselling author of *Fermat's Last Theorem* masterfully refutes the overreaching claims the "New Atheists," providing millions of educated believers with a clear, engaging explanation of what science really says, how there's still much space for the Divine in the universe, and why faith in both God and empirical science are not mutually exclusive. A highly publicized coterie of scientists and thinkers, including Richard Dawkins, the late Christopher Hitchens, and Lawrence Krauss, have vehemently contended that breakthroughs in modern science have disproven the existence of God, asserting that we must accept that the creation of the universe came out of nothing, that religion is evil, that evolution fully explains the dazzling complexity of life, and more. In this much-needed book, science journalist Amir Aczel profoundly disagrees and conclusively demonstrates that science has not, as yet, provided any definitive proof refuting the existence of God. *Why Science Does Not Disprove God* is his brilliant and incisive analyses of the theories and findings of such titans as Albert Einstein, Roger Penrose, Alan Guth, and Charles Darwin, all of whose major breakthroughs leave open the possibility—and even the strong likelihood—of a Creator. Bolstering his argument, Aczel lucidly discourses on arcane aspects of physics to reveal how quantum theory, the anthropic principle, the fine-tuned dance of protons and quarks, the existence of anti-matter and the theory of parallel universes, also fail to disprove God.