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KEY=IN - FORD HOUSTON

IN PURSUIT OF THE UNKNOWN

17 EQUATIONS THAT CHANGED THE WORLD

Basic Books "An engaging tour of vital math for a modern world.... [A] wonderfully accessible book."--Scientific American Most people are familiar with history's great equations: Newton's Law of Gravity, for instance, or Einstein's theory of relativity. But the way these mathematical breakthroughs have contributed to human progress is seldom appreciated. In *In Pursuit of the Unknown*, celebrated mathematician Ian Stewart untangles the roots of our most important mathematical statements to show that equations have long been a driving force behind nearly every aspect of our lives. Using seventeen of our most crucial equations--including the Wave Equation that allowed engineers to measure a building's response to earthquakes, saving countless lives, and the Black-Scholes model, used by bankers to track the price of financial derivatives over time--Stewart illustrates that many of the advances we now take for granted were made possible by mathematical discoveries. An approachable, lively, and informative guide to the mathematical building blocks of modern life, *In Pursuit of the Unknown* is a penetrating exploration of how we have also used equations to make sense of, and in turn influence, our world.

IN PURSUIT OF THE UNKNOWN

17 EQUATIONS THAT CHANGED THE WORLD

Basic Books The seventeen equations that form the basis for life as we know it Most people are familiar with history's great equations: Newton's Law of Gravity, for instance, or Einstein's theory of relativity. But the way these mathematical breakthroughs have contributed to human progress is seldom appreciated. In *In Pursuit of the Unknown*, celebrated mathematician Ian Stewart untangles the roots of our most important mathematical statements to show that equations have long been a driving force behind nearly every aspect of our lives. Using seventeen of our most crucial equations--including the Wave Equation that allowed engineers to measure a building's response to earthquakes, saving countless lives, and the Black-Scholes model, used by bankers to track the price of financial derivatives over time--Stewart illustrates that many of the advances we now take for granted were made possible by mathematical discoveries. An approachable, lively, and informative guide to the mathematical building blocks of modern life, *In Pursuit of the Unknown* is a penetrating exploration of how we have also used equations to make sense of, and in turn influence, our world.

FIVE EQUATIONS THAT CHANGED THE WORLD

THE POWER AND POETRY OF MATHEMATICS

Hachette Books A Publishers Weekly best book of 1995! Dr. Michael Guillen, known to millions as the science editor of ABC's Good Morning America, tells the fascinating stories behind five mathematical equations. As a regular contributor to daytime's most popular morning news show and an instructor at Harvard University, Dr. Michael Guillen has earned the respect of millions as a clear and entertaining guide to the exhilarating world of science and mathematics. Now Dr. Guillen unravels the equations that have led to the inventions and events that characterize the modern world, one of which -- Albert Einstein's famous energy equation, $E=mc^2$ -- enabled the creation of the nuclear bomb. Also revealed are the mathematical foundations for the moon landing, airplane travel, the electric generator -- and even life itself. Praised by Publishers Weekly as "a wholly accessible, beautifully written exploration of the potent mathematical imagination," and named a Best Nonfiction Book of 1995, the stories behind *The Five Equations That Changed the World*, as told by Dr. Guillen, are not only chronicles of science, but also gripping dramas of jealousy, fame, war, and discovery.

THE GREAT MATHEMATICAL PROBLEMS

Profile Books There are some mathematical problems whose significance goes beyond the ordinary - like Fermat's Last Theorem or Goldbach's Conjecture - they are the enigmas which define mathematics. *The Great Mathematical Problems* explains why these problems exist, why they matter, what drives mathematicians to incredible lengths to solve them and where they stand in the context of mathematics and science as a whole. It contains solved problems - like the Poincar Conjecture, cracked by the eccentric genius Grigori Perelman, who refused academic honours and a million-dollar prize for his work, and ones which, like the Riemann Hypothesis,

remain baffling after centuries. Stewart is the guide to this mysterious and exciting world, showing how modern mathematicians constantly rise to the challenges set by their predecessors, as the great mathematical problems of the past succumb to the new techniques and ideas of the present.

PROFESSOR STEWART'S CABINET OF MATHEMATICAL CURIOSITIES

Profile Books School maths is not the interesting part. The real fun is elsewhere. Like a magpie, Ian Stewart has collected the most enlightening, entertaining and vexing 'curiosities' of maths over the years... Now, the private collection is displayed in his cabinet. There are some hidden gems of logic, geometry and probability -- like how to extract a cherry from a cocktail glass (harder than you think), a pop up dodecahedron, the real reason why you can't divide anything by zero and some tips for making money by proving the obvious. Scattered among these are keys to unlocking the mysteries of Fermat's last theorem, the Poincar Conjecture, chaos theory, and the P/NP problem for which a million dollar prize is on offer. There are beguiling secrets about familiar names like Pythagoras or prime numbers, as well as anecdotes about great mathematicians. Pull out the drawers of the Professor's cabinet and who knows what could happen...

SIGNIFICANT FIGURES

THE LIVES AND WORK OF GREAT MATHEMATICIANS

Basic Books A celebrated mathematician traces the history of math through the lives and work of twenty-five pioneering mathematicians In Significant Figures, acclaimed mathematician Ian Stewart introduces the visionaries of mathematics throughout history. Delving into the lives of twenty-five great mathematicians, Stewart examines the roles they played in creating, inventing, and discovering the mathematics we use today. Through these short biographies, we get acquainted with the history of mathematics from Archimedes to Benoit Mandelbrot, and learn about those too often left out of the cannon, such as Muhammad ibn Musa al-Khwarizmi (c. 780-850), the creator of algebra, and Augusta Ada King (1815-1852), Countess of Lovelace, the world's first computer programmer. Tracing the evolution of mathematics over the course of two millennia, Significant Figures will educate and delight aspiring mathematicians and experts alike.

THE MATHEMATICS OF LIFE

Basic Books 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.

DO DICE PLAY GOD?

THE MATHEMATICS OF UNCERTAINTY

Profile Books Uncertainty is everywhere. It lurks in every consideration of the future - the weather, the economy, the sex of an unborn child - even quantities we think that we know such as populations or the transit of the planets contain the possibility of error. It's no wonder that, throughout that history, we have attempted to produce rigidly defined areas of uncertainty - we prefer the surprise party to the surprise asteroid. We began our quest to make certain an uncertain world by reading omens in livers, tea leaves, and the stars. However, over the centuries, driven by curiosity, competition, and a desire be better gamblers, pioneering mathematicians and scientists began to reduce wild uncertainties to tame distributions of probability and statistical inferences. But, even as unknown unknowns became known unknowns, our pessimism made us believe that some problems were unsolvable and our intuition misled us. Worse, as we realized how omnipresent and varied uncertainty is, we encountered chaos, quantum mechanics, and the limitations of our predictive power. Bestselling author Professor Ian Stewart explores the history and mathematics of uncertainty. Touching on gambling, probability, statistics, financial and weather forecasts, censuses, medical studies, chaos, quantum physics, and climate, he makes one thing clear: a reasonable probability is the only certainty.

CALCULATING THE COSMOS

HOW MATHEMATICS UNVEILS THE UNIVERSE

Basic Books 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.

WHAT'S THE USE?

HOW MATHEMATICS SHAPES EVERYDAY LIFE

Basic Books See the world in a completely new way as an esteemed mathematician shows how math powers the world—from technology to health care and beyond. Almost all of us have sat in a math class, wondering when we'd ever need to know how to find the roots of a polynomial or graph imaginary numbers. And in one sense, we were right: if we needed to, we'd use a computer. But as Ian Stewart argues in *What's the Use?*, math isn't just about boring computations. Rather, it offers us new and profound insights into our world, allowing us to accomplish feats as significant as space exploration and organ donation. From the trigonometry that keeps a satellite in orbit to the prime numbers used by the world's most advanced security systems to the imaginary numbers that enable augmented reality, math isn't just relevant to our lives. It is the very fabric of our existence.

PROFESSOR STEWART'S INCREDIBLE NUMBERS

Basic Books At its heart, mathematics is about numbers, our fundamental tools for understanding the world. In Professor Stewart's *Incredible Numbers*, Ian Stewart offers a delightful introduction to the numbers that surround us, from the common (Pi and 2) to the uncommon but no less consequential (1.059463 and 43,252,003,274,489,856,000). Along the way, Stewart takes us through prime numbers, cubic equations, the concept of zero, the possible positions on the Rubik's Cube, the role of numbers in human history, and beyond! An unfailingly genial guide, Stewart brings his characteristic wit and erudition to bear on these incredible numbers, offering an engaging primer on the principles and power of math.

THE MATH OF LIFE AND DEATH

7 MATHEMATICAL PRINCIPLES THAT SHAPE OUR LIVES

Simon and Schuster "Few of us really appreciate the full power of math--the extent to which its influence is not only in every office and every home, but also in every courtroom and hospital ward. In this ... book, Kit Yates explores the true stories of life-changing events in which the application--or misapplication--of mathematics has played a critical role: patients crippled by faulty genes and entrepreneurs bankrupted by faulty algorithms; innocent victims of miscarriages of justice; and the unwitting victims of software glitches"--Publisher marketing.

HOW TO CUT A CAKE

AND OTHER MATHEMATICAL CONUNDRUMS

OUP Oxford Welcome back to Ian Stewart's magical world of mathematics! This is a strange world of never-ending chess games, empires on the moon, furious fireflies, and, of course, disputes over how best to cut a cake. Each quirky tale presents a fascinating mathematical puzzle — challenging, fun, and also introducing the reader to a significant mathematical problem in an engaging and witty way.

ROOTS TO RESEARCH

A VERTICAL DEVELOPMENT OF MATHEMATICAL PROBLEMS

Amer Mathematical Society Certain contemporary mathematical problems are of particular interest to teachers and students because their origin lies in mathematics covered in the elementary school curriculum and their development can be traced through high school, college, and university-level mathematics. This book is intended to provide a source for the mathematics (from beginning to advanced) needed to understand the emergence and evolution of five of these problems: The Four Numbers Problem, Rational Right Triangles, Lattice Point Geometry, Rational Approximation, and Dissection. Each chapter begins with the elementary geometry and number theory at the source of the problem, and proceeds (with the exception of the first problem) to a discussion of important results in current research. The introduction to each chapter summarises the contents of its various sections, as well as the background required. The book is intended for students and teachers of mathematics from high school through graduate school. It should also be of interest to working mathematicians who are curious about mathematical results in fields other than their own. It can be used by teachers at all of the above-mentioned levels for the enhancement of standard curriculum materials or extra-curricular projects.

50 VISIONS OF MATHEMATICS

Oxford University Press To celebrate the 50th anniversary of the founding of the Institute of Mathematics and its Applications (IMA), this book is designed to showcase the beauty of mathematics - including images inspired by mathematical problems - together with its unreasonable effectiveness and applicability, without frying your brain.

PROFESSOR STEWART'S CASEBOOK OF MATHEMATICAL MYSTERIES

Basic Books In Professor Stewart's *Casebook of Mathematical Mysteries*, acclaimed mathematician Ian Stewart presents an enticing collection of mathematical curios and conundrums. With a new puzzle on each page, this compendium of brainteasers will both teach and delight. Guided by stalwart detective Hemlock Soames and his sidekick, Dr. John Watsup, readers will delve into almost two hundred mathematical problems, puzzles, and facts. Tackling subjects from mathematical dates (such as Pi Day), what we don't know about primes, and why the Earth is round, this clever, mind-expanding book demonstrates the power and fun inherent in

mathematics.

ALGEBRAIC NUMBER THEORY AND FERMAT'S LAST THEOREM

THIRD EDITION

CRC Press First published in 1979 and written by two distinguished mathematicians with a special gift for exposition, this book is now available in a completely revised third edition. It reflects the exciting developments in number theory during the past two decades that culminated in the proof of Fermat's Last Theorem. Intended as an upper level textbook, it

FLATTERLAND

LIKE FLATLAND, ONLY MORE SO

ReadHowYouWant.com First there was Edwin A. Abbott's remarkable Flatland, published in 1884, and one of the all-time classics of popular mathematics. Now, from mathematician and accomplished science writer Ian Stewart, comes what Nature calls "a superb sequel." Through larger-than-life characters and an inspired story line, Flatterland explores our present understanding of the shape and origins of the universe, the nature of space, time, and matter, as well as modern geometries and their applications. The journey begins when our heroine, Victoria Line, comes upon her great-great-grandfather A. Square's diary, hidden in the attic. The writings help her to contact the Space Hopper, who tempts her away from her home and family in Flatland and becomes her guide and mentor through ten dimensions. In the tradition of Alice in Wonderland and The Phantom Toll Booth, this magnificent investigation into the nature of reality is destined to become a modern classic.

CONCEPTS OF MODERN MATHEMATICS

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

FROM HERE TO INFINITY

Oxford Paperbacks A retitled and revised edition of Ian Stewart's The Problem of Mathematics, this is the perfect guide to today's mathematics. Read about the latest discoveries, including Andrew Wile's amazing proof of Fermat's Last Theorem, the newest advances in knot theory, the Four Colour Theorem, Chaos Theory, and fake four-dimensional spaces. See how simple concepts from probability theory shed light on the National Lottery and tell you how to maximize your winnings. Discover how infinitesimals become respectable, why there are different kinds of infinity, and how to square the circle with the mathematical equivalent of a pair of scissors.

MATHEMATICS FOR THE NONMATHEMATICIAN

Courier Corporation Erudite and entertaining overview follows development of mathematics from ancient Greeks to present. Topics include logic and mathematics, the fundamental concept, differential calculus, probability theory, much more. Exercises and problems.

WHO'S #1?

THE SCIENCE OF RATING AND RANKING

Princeton University Press "Who's #1? offers an engaging and accessible account of how scientific rating and ranking methods are created and applied to a variety of uses. Amy Langville and Carl Meyer provide the first comprehensive overview of the mathematical algorithms and methods used to rate and rank sports teams, political candidates, products, Web pages, and more. In a series of interesting asides, Langville and Meyer provide fascinating insights into the ingenious contributions of many of the field's pioneers. They survey and compare the different methods employed today, showing why their strengths and weaknesses depend on the underlying goal, and explaining why and when a given method should be considered. Also describe what can and can't be expected from the most widely used systems"--

WHY BEAUTY IS TRUTH

THE HISTORY OF SYMMETRY

Basic Books Physics.

THE JOY OF X

A GUIDED TOUR OF MATH, FROM ONE TO INFINITY

Houghton Mifflin Harcourt A comprehensive tour of leading mathematical ideas by an award-winning professor and columnist for the New York Times Opinionator series demonstrates how math intersects with philosophy, science and other aspects of everyday life. By the author of The Calculus of Friendship. 50,000 first printing.

SYMMETRY: A VERY SHORT INTRODUCTION

OUP Oxford In the 1800s mathematicians introduced a formal theory of symmetry: group theory. Now a branch of abstract algebra, this subject first arose in the theory of equations. Symmetry is an immensely important concept in mathematics and throughout the

sciences, and its applications range across the entire subject. Symmetry governs the structure of crystals, innumerable types of pattern formation, how systems change their state as parameters vary; and fundamental physics is governed by symmetries in the laws of nature. It is highly visual, with applications that include animal markings, locomotion, evolutionary biology, elastic buckling, waves, the shape of the Earth, and the form of galaxies. In this Very Short Introduction, Ian Stewart demonstrates its deep implications, and shows how it plays a major role in the current search to unify relativity and quantum theory. 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.

WHAT SHAPE IS A SNOWFLAKE?

An enlightening vision of how the laws of mathematics find organic expression in the beauty and patterns of nature, written by an acclaimed mathematician and science writer.

THE SECRET LIFE OF EQUATIONS

THE 50 GREATEST EQUATIONS AND HOW THEY WORK

Hachette UK Discover the 50 equations that have led to incredible discoveries, ground-breaking technology and have shaped our understanding of the world. From much heralded classics, like Zeno's Dichotomy and Pythagoras's Theorem, to The Schrödinger Wave Equation and Google PageRank, each equation is broken down and explained in a unique, illustrated way, so that you understand what it's about; what it's good for; its history, detail and related equations. Behind every important scientific discovery there is an equation. They are far from baffling, and now you too can understand their power and beauty!

THINKING IN NUMBERS

ON LIFE, LOVE, MEANING, AND MATH

Little, Brown Spark The irresistibly engaging book that "enlarges one's wonder at Tammet's mind and his all-embracing vision of the world as grounded in numbers" (Oliver Sacks, MD). Thinking in Numbers is the book that Daniel Tammet, mathematical savant and bestselling author, was born to write. In Tammet's world, numbers are beautiful and mathematics illuminates our lives and minds. Using anecdotes, everyday examples, and ruminations on history, literature, and more, Tammet allows us to share his unique insights and delight in the way numbers, fractions, and equations underpin all our lives. Inspired variously by the complexity of snowflakes, Anne Boleyn's eleven fingers, and his many siblings, Tammet explores questions such as why time seems to speed up as we age, whether there is such a thing as an average person, and how we can make sense of those we love. His provocative and inspiring new book will change the way you think about math and fire your imagination to view the world with fresh eyes.

LIFE'S OTHER SECRET

THE NEW MATHEMATICS OF THE LIVING WORLD

Until the middle of this century, it was completely unclear whether life had any kind of inorganic basis. The discovery of the first secret of life, the molecular structure of DNA, solved that particular riddle.

THE LIFE OF A LEAF

University of Chicago Press In its essence, science is a way of looking at and thinking about the world. In *The Life of a Leaf*, Steven Vogel illuminates this approach, using the humble leaf as a model. Whether plant or person, every organism must contend with its immediate physical environment, a world that both limits what organisms can do and offers innumerable opportunities for evolving fascinating ways of challenging those limits. Here, Vogel explains these interactions, examining through the example of the leaf the extraordinary designs that enable life to adapt to its physical world. In Vogel's account, the leaf serves as a biological everyman, an ordinary and ubiquitous living thing that nonetheless speaks volumes about our environment as well as its own. Thus in exploring the leaf's world, Vogel simultaneously explores our own. A companion website with demonstrations and teaching tools can be found here: <http://www.press.uchicago.edu/sites/vogel/index.html>

THE PLANET REMADE

Princeton University Press First published in Great Britain by Granta Books, 2015.

MAGICAL MATHEMATICS

THE MATHEMATICAL IDEAS THAT ANIMATE GREAT MAGIC TRICKS

Princeton University Press "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"--

EUCLID'S WINDOW

THE STORY OF GEOMETRY FROM PARALLEL LINES TO HYPERSPACE

Simon and Schuster Through Euclid's Window Leonard Mlodinow brilliantly and delightfully leads us on a journey through five revolutions in geometry, from the Greek concept of parallel lines to the latest notions of hyperspace. Here is an altogether new, refreshing, alternative history of math revealing how simple questions anyone might ask about space -- in the living room or in some other galaxy -- have been the hidden engine of the highest achievements in science and technology. Based on Mlodinow's extensive historical research; his studies alongside colleagues such as Richard Feynman and Kip Thorne; and interviews with leading physicists and mathematicians such as Murray Gell-Mann, Edward Witten, and Brian Greene, *Euclid's Window* is an extraordinary blend of rigorous, authoritative investigation and accessible, good-humored storytelling that makes a stunningly original argument asserting the primacy of geometry. For those who have looked through *Euclid's Window*, no space, no thing, and no time will ever be quite the same.

TAMING THE UNKNOWN

A HISTORY OF ALGEBRA FROM ANTIQUITY TO THE EARLY TWENTIETH CENTURY

Princeton University Press What is algebra? For some, it is an abstract language of x's and y's. For mathematics majors and professional mathematicians, it is a world of axiomatically defined constructs like groups, rings, and fields. *Taming the Unknown* considers how these two seemingly different types of algebra evolved and how they relate. Victor Katz and Karen Parshall explore the history of algebra, from its roots in the ancient civilizations of Egypt, Mesopotamia, Greece, China, and India, through its development in the medieval Islamic world and medieval and early modern Europe, to its modern form in the early twentieth century. Defining algebra originally as a collection of techniques for determining unknowns, the authors trace the development of these techniques from geometric beginnings in ancient Egypt and Mesopotamia and classical Greece. They show how similar problems were tackled in Alexandrian Greece, in China, and in India, then look at how medieval Islamic scholars shifted to an algorithmic stage, which was further developed by medieval and early modern European mathematicians. With the introduction of a flexible and operative symbolism in the sixteenth and seventeenth centuries, algebra entered into a dynamic period characterized by the analytic geometry that could evaluate curves represented by equations in two variables, thereby solving problems in the physics of motion. This new symbolism freed mathematicians to study equations of degrees higher than two and three, ultimately leading to the present abstract era. *Taming the Unknown* follows algebra's remarkable growth through different epochs around the globe.

IN PURSUIT OF THE TRAVELING SALESMAN

MATHEMATICS AT THE LIMITS OF COMPUTATION

Princeton University Press What is the shortest possible route for a traveling salesman seeking to visit each city on a list exactly once and return to his city of origin? It sounds simple enough, yet the traveling salesman problem is one of the most intensely studied puzzles in applied mathematics—and it has defied solution to this day. In this book, William Cook takes readers on a mathematical excursion, picking up the salesman's trail in the 1800s when Irish mathematician W. R. Hamilton first defined the problem, and venturing to the furthest limits of today's state-of-the-art attempts to solve it. He also explores its many important applications, from genome sequencing and designing computer processors to arranging music and hunting for planets. *In Pursuit of the Traveling Salesman* travels to the very threshold of our understanding about the nature of complexity, and challenges you yourself to discover the solution to this captivating mathematical problem.

DOES GOD PLAY DICE

THE NEW MATHEMATICS OF CHAOS

Wiley-Blackwell The revised and updated edition includes three completely new chapters on the prediction and control of chaotic systems. It also incorporates new information regarding the solar system and an account of complexity theory. This witty, lucid and engaging book makes the complex mathematics of chaos accessible and entertaining. Presents complex mathematics in an accessible style. Includes three new chapters on prediction in chaotic systems, control of chaotic systems, and on the concept of chaos. Provides a discussion of complexity theory.

KING OF INFINITE SPACE

DONALD COXETER, THE MAN WHO SAVED GEOMETRY

Bloomsbury Publishing USA "There is perhaps no better way to prepare for the scientific breakthroughs of tomorrow than to learn the language of geometry." -Brian Greene, author of *The Elegant Universe* The word "geometry" brings to mind an array of mathematical images: circles, triangles, the Pythagorean Theorem. Yet geometry is so much more than shapes and numbers; indeed, it governs much of our lives--from architecture and microchips to car design, animated movies, the molecules of food, even our own body chemistry. And as Siobhan Roberts elegantly conveys in *The King of Infinite Space*, there can be no better guide to the majesty of

geometry than Donald Coxeter, perhaps the greatest geometer of the twentieth century. Many of the greatest names in intellectual history-Pythagoras, Plato, Archimedes, Euclid- were geometers, and their creativity and achievements illuminate those of Coxeter, revealing geometry to be a living, ever-evolving endeavor, an intellectual adventure that has always been a building block of civilization. Coxeter's special contributions-his famed Coxeter groups and Coxeter diagrams-have been called by other mathematicians "tools as essential as numbers themselves," but his greatest achievement was to almost single-handedly preserve the tradition of classical geometry when it was under attack in a mathematical era that valued all things austere and rational. Coxeter also inspired many outside the field of mathematics. Artist M. C. Escher credited Coxeter with triggering his legendary Circle Limit patterns, while futurist/inventor Buckminster Fuller acknowledged that his famed geodesic dome owed much to Coxeter's vision. *The King of Infinite Space* is an elegant portal into the fascinating, arcane world of geometry.

MATH HYSTERIA : FUN AND GAMES WITH MATHEMATICS

FUN AND GAMES WITH MATHEMATICS

OUP Oxford Welcome to Ian Stewart's strange and magical world of mathematics! In *Math Hysteria*, Professor Stewart presents us with a wealth of magical puzzles, each one spun around an amazing tale: *Counting the Cattle of the Sun*; *The Great Drain Robbery*; and *Preposterous Piratical Predicaments*; to name but a few. Along the way, we also meet many curious characters: in short, these stories are engaging, challenging, and lots of fun!

ORDINARY DIFFERENTIAL EQUATIONS

AN ELEMENTARY TEXTBOOK FOR STUDENTS OF MATHEMATICS, ENGINEERING, AND THE SCIENCES

Courier Corporation Skillfully organized introductory text examines origin of differential equations, then defines basic terms and outlines the general solution of a differential equation. Subsequent sections deal with integrating factors; dilution and accretion problems; linearization of first order systems; Laplace Transforms; Newton's Interpolation Formulas, more.

THE SCIENCEBOOK

EVERYTHING YOU NEED TO KNOW ABOUT THE WORLD AND HOW IT WORKS

National Geographic Books Natural phenomena, revolutionary inventions, scientific facts, and the most up-to-date questions are all explained in detailed text that is complemented by visually arresting graphics. Six major sections are further broken down into subsections that encompass everything from microscopic life to nuclear power.