

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics

By John Derbyshire

Download Read Online

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire

In August 1859 Bernhard Riemann, a little-known 32-year old mathematician, presented a paper to the Berlin Academy titled: "On the Number of Prime Numbers Less Than a Given Quantity." In the middle of that paper, Riemann made an incidental remark — a guess, a hypothesis. What he tossed out to the assembled mathematicians that day has proven to be almost cruelly compelling to countless scholars in the ensuing years. Today, after 150 years of careful research and exhaustive study, the question remains. Is the hypothesis true or false?

Riemann's basic inquiry, the primary topic of his paper, concerned a straightforward but nevertheless important matter of arithmetic — defining a precise formula to track and identify the occurrence of prime numbers. But it is that incidental remark — the Riemann Hypothesis — that is the truly astonishing legacy of his 1859 paper. Because Riemann was able to see beyond the pattern of the primes to discern traces of something mysterious and mathematically elegant shrouded in the shadows — subtle variations in the distribution of those prime numbers. Brilliant for its clarity, astounding for its potential consequences, the Hypothesis took on enormous importance in mathematics. Indeed, the successful solution to this puzzle would herald a revolution in prime number theory. Proving or disproving it became the greatest challenge of the age.

It has become clear that the Riemann Hypothesis, whose resolution seems to hang tantalizingly just beyond our grasp, holds the key to a variety of scientific and mathematical investigations. The making and breaking of modern codes, which depend on the properties of the prime numbers, have roots in the Hypothesis. In a series of extraordinary developments during the 1970s, it emerged that even the physics of the atomic nucleus is connected in ways not yet fully understood to this strange conundrum. Hunting down the solution to the Riemann Hypothesis has become an obsession for many — the veritable "great white whale" of mathematical research. Yet despite determined efforts by generations of mathematicians, the Riemann Hypothesis defies resolution.

Alternating passages of extraordinarily lucid mathematical exposition with chapters of elegantly composed biography and history, **Prime Obsession** is a fascinating and fluent account of an epic mathematical mystery that continues to challenge and excite the world. Posited a century and a half ago, the Riemann

Hypothesis is an intellectual feast for the cognoscenti and the curious alike. Not just a story of numbers and calculations, **Prime Obsession** is the engrossing tale of a relentless hunt for an elusive proof — and those who have been consumed by it.

Download Prime Obsession: Bernhard Riemann and the Greatest ...pdf

Read Online Prime Obsession: Bernhard Riemann and the Greate ...pdf

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics

By John Derbyshire

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire

In August 1859 Bernhard Riemann, a little-known 32-year old mathematician, presented a paper to the Berlin Academy titled: "On the Number of Prime Numbers Less Than a Given Quantity." In the middle of that paper, Riemann made an incidental remark — a guess, a hypothesis. What he tossed out to the assembled mathematicians that day has proven to be almost cruelly compelling to countless scholars in the ensuing years. Today, after 150 years of careful research and exhaustive study, the question remains. Is the hypothesis true or false?

Riemann's basic inquiry, the primary topic of his paper, concerned a straightforward but nevertheless important matter of arithmetic — defining a precise formula to track and identify the occurrence of prime numbers. But it is that incidental remark — the Riemann Hypothesis — that is the truly astonishing legacy of his 1859 paper. Because Riemann was able to see beyond the pattern of the primes to discern traces of something mysterious and mathematically elegant shrouded in the shadows — subtle variations in the distribution of those prime numbers. Brilliant for its clarity, astounding for its potential consequences, the Hypothesis took on enormous importance in mathematics. Indeed, the successful solution to this puzzle would herald a revolution in prime number theory. Proving or disproving it became the greatest challenge of the age.

It has become clear that the Riemann Hypothesis, whose resolution seems to hang tantalizingly just beyond our grasp, holds the key to a variety of scientific and mathematical investigations. The making and breaking of modern codes, which depend on the properties of the prime numbers, have roots in the Hypothesis. In a series of extraordinary developments during the 1970s, it emerged that even the physics of the atomic nucleus is connected in ways not yet fully understood to this strange conundrum. Hunting down the solution to the Riemann Hypothesis has become an obsession for many — the veritable "great white whale" of mathematical research. Yet despite determined efforts by generations of mathematicians, the Riemann Hypothesis defies resolution.

Alternating passages of extraordinarily lucid mathematical exposition with chapters of elegantly composed biography and history, **Prime Obsession** is a fascinating and fluent account of an epic mathematical mystery that continues to challenge and excite the world. Posited a century and a half ago, the Riemann Hypothesis is an intellectual feast for the cognoscenti and the curious alike. Not just a story of numbers and calculations, **Prime Obsession** is the engrossing tale of a relentless hunt for an elusive proof — and those who have been consumed by it.

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire Bibliography

- Sales Rank: #94273 in eBooks

- Published on: 2003-04-15
- Released on: 2003-04-15
- Format: Kindle eBook

Download Prime Obsession: Bernhard Riemann and the Greatest ...pdf

Read Online Prime Obsession: Bernhard Riemann and the Greate ...pdf

Download and Read Free Online Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire

Editorial Review

Amazon.com Review
Bernhard Riemann was an underdog of sorts, a malnourished son of a parson who grew up to be the author of one of mathematics' greatest problems. In *Prime Obsession*, John Derbyshire deals brilliantly with both Riemann's life and that problem: proof of the conjecture, "All non-trivial zeros of the zeta function have real part one-half." Though the statement itself passes as nonsense to anyone but a mathematician, Derbyshire walks readers through the decades of reasoning that led to the Riemann Hypothesis in such a way as to clear it up perfectly. Riemann himself never proved the statement, and it remains unsolved to this day. *Prime Obsession* offers alternating chapters of step-by-step math and a history of 19th-century European intellectual life, letting readers take a breather between chunks of well-written information. Derbyshire's style is accessible but not dumbed-down, thorough but not heavy-handed. This is among the best popular treatments of an obscure mathematical idea, inviting readers to explore the theory without insisting on page after page of formulae.

In 2000, the Clay Mathematics Institute offered a one-million-dollar prize to anyone who could prove the Riemann Hypothesis, but luminaries like David Hilbert, G.H. Hardy, Alan Turing, André Weil, and Freeman Dyson have all tried before. Will the Riemann Hypothesis ever be proved? "One day we shall know," writes Derbyshire, and he makes the effort seem very worthwhile. --*Therese Littleton*

From Booklist
Bernhard Riemann would make any list of the greatest mathematicians ever. In 1859, he proposed a formula to count prime numbers that has defied all attempts to prove it true. This new book tackles the Riemann hypothesis. Partly a biography of Riemann, Derbyshire's work presents more technical details about the hypothesis and will probably attract math recreationists. It requires, however, only a college-prep level of knowledge because of its crystalline explanations. Derbyshire treats the hypothesis historically, tracking increments of progress with sketches of well-known people, such as David Hilbert and Alan Turing, who have been stymied by it. Carrying a million-dollar bounty, the hypothesis is the most famous unsolved problem in math today, and interest in it will be both sated and stoked by these able authors. *Gilbert Taylor*
Copyright © American Library Association. All rights reserved

Review
"...[this book] will reward the effort paid to [it]" -- *Washington Post, May 4, 2003*

"...a nice history..." -- *Mathematical Reviews, 2004*

"...a remarkably accessible and deeply researched description of this fascinating problem. ... eminently successful at bringing this story to life." -- *Science, October 3, 2003*

"...a wonderful book. ...interestingly and skillfully written... it approaches many aspects of the subject in imaginative and thought-provoking ways." -- *The Mathematical Intelligencer, Winter 2004*

"...a wonderfully lucid and captivating explanation and history of the hypothesis and of the life and times of Riemann." -- *Mathematics Teacher, April 2004*

"...accessible to anyone comfortable with simple mathematical formulas. ...Derbyshire’s remarkable book is,

in my view, a gem." -- *Physics Today, June 2004*

"...mind-expanding..." -- *Mark Haddon in The Daily Telegraph, BOOKS OF THE YEAR column, November 22, 2003*

"...rewarding for those up to the challenge. Energetic and conversational, it puts one at ease." -- *Los Angeles Times, June 15, 2003*

"...warm and witty ... a genuinely enjoyable and enlightening experience." -- *The New York Sun, June 18, 2003*

"Derbyshire makes complex mathematical functions understandable even to someone who hasn't looked at calculus in more than twenty years." -- *Unresolved References, September 12, 2004*

Users Review

From reader reviews:

Dora Gourley:

Now a day people that Living in the era where everything reachable by match the internet and the resources in it can be true or not need people to be aware of each info they get. How individuals to be smart in having any information nowadays? Of course the answer is reading a book. Looking at a book can help individuals out of this uncertainty Information specifically this Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics book as this book offers you rich facts and knowledge. Of course the details in this book hundred pct guarantees there is no doubt in it you know.

Richard Hund:

Information is provisions for individuals to get better life, information presently can get by anyone on everywhere. The information can be a expertise or any news even a concern. What people must be consider while those information which is in the former life are difficult to be find than now is taking seriously which one would work to believe or which one the particular resource are convinced. If you get the unstable resource then you buy it as your main information you will see huge disadvantage for you. All of those possibilities will not happen within you if you take Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics as your daily resource information.

Jody Vinson:

Exactly why? Because this Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics is an unordinary book that the inside of the book waiting for you to snap the item but latter it will surprise you with the secret this inside. Reading this book adjacent to it was fantastic author who write the book in such amazing way makes the content interior easier to understand, entertaining means but still convey the meaning fully. So , it is good for you because of not hesitating having this nowadays or you going to regret it. This excellent book will give you a lot of gains than the other book get such as help improving your expertise and your critical thinking way. So , still want to postpone having that book? If I were being you I will go to the book store hurriedly.

Harry Greene:

Do you really one of the book lovers? If yes, do you ever feeling doubt if you find yourself in the book store? Make an effort to pick one book that you find out the inside because don't determine book by its protect may doesn't work here is difficult job because you are afraid that the inside maybe not since fantastic as in the outside look likes. Maybe you answer could be Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics why because the excellent cover that make you consider with regards to the content will not disappoint you. The inside or content will be fantastic as the outside or perhaps cover. Your reading sixth sense will directly make suggestions to pick up this book.

Download and Read Online Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire #U6BR04C8Y1G

Read Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire for online ebook

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire books to read online.

Online Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire ebook PDF download

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire Doc

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire Mobipocket

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics By John Derbyshire EPub