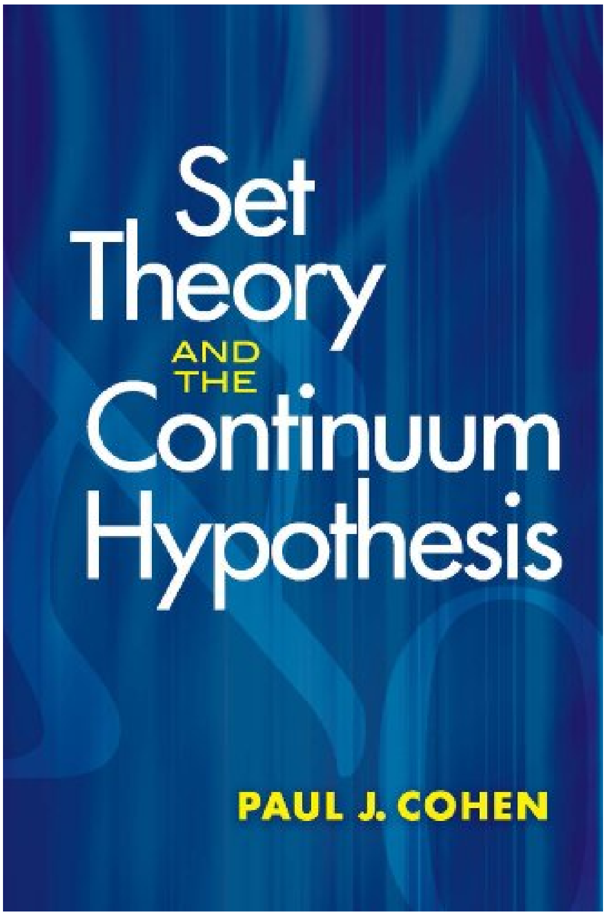
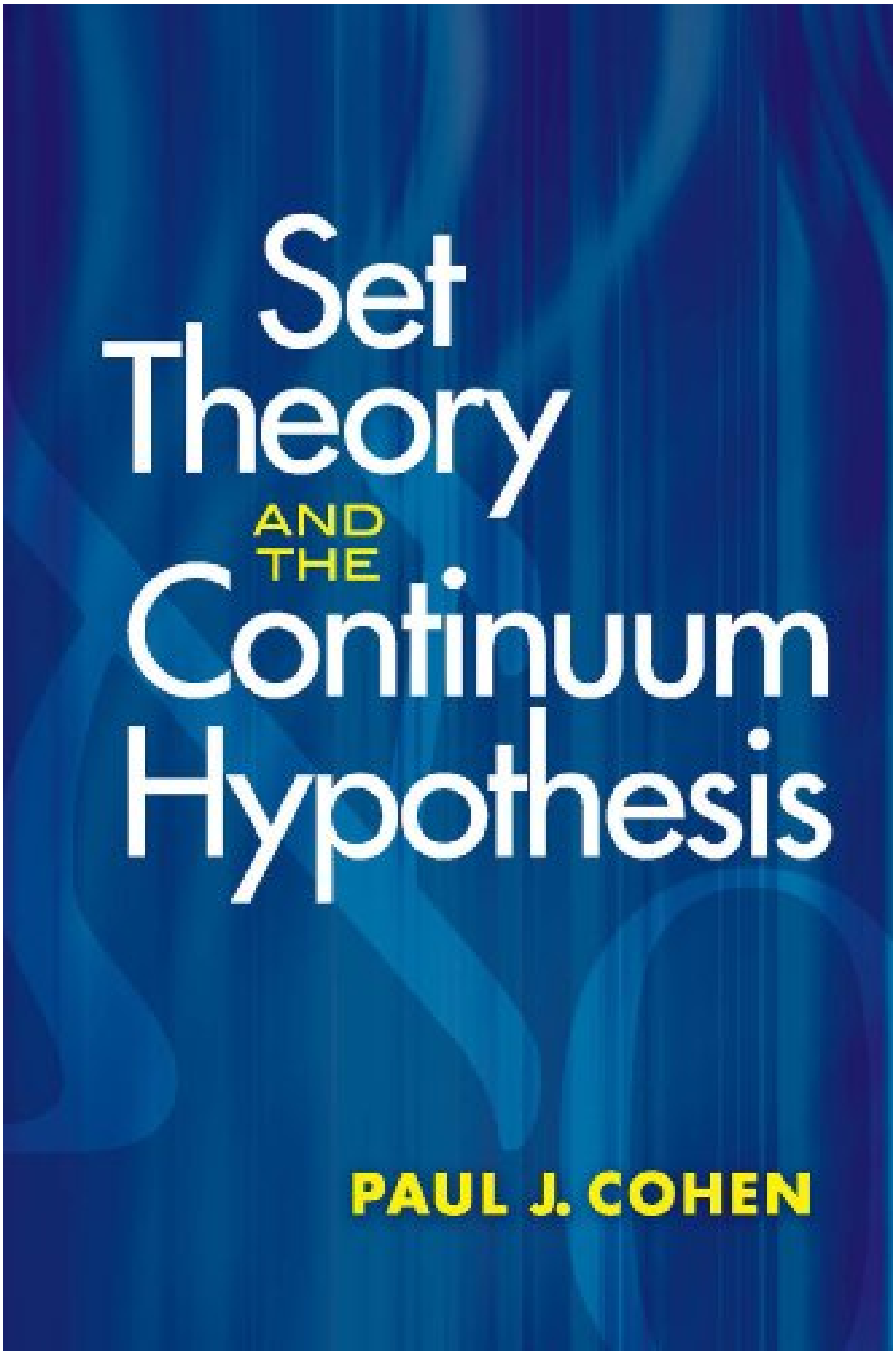
SET THEORY AND THE CONTINUUM HYPOTHESIS (DOVER BOOKS ON MATHEMATICS) BY PAUL J. COHEN





SET THEORY AND THE CONTINUUM HYPOTHESIS (DOVER BOOKS ON MATHEMATICS)
BY PAUL J. COHEN

SET THEORY AND THE CONTINUUM HYPOTHESIS (DOVER BOOKS ON MATHEMATICS) BY PAUL J. COHEN PDF

Beginning with visiting this site, you have attempted to start nurturing checking out a publication Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen This is specialized website that market hundreds compilations of books Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen from whole lots sources. So, you won't be bored more to select guide. Besides, if you likewise have no time to search guide Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen, simply rest when you're in office and also open the web browser. You could find this Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen inn this website by attaching to the internet.

About the Author
A renowned mathematician, professor, and theorist, the late Paul J. Cohen won two of the most prestigious awards in mathematics: the American Mathematical Society's Bôcher Prize in 1964, for analysis; and the Fields Medal, the "Nobel Prize" of mathematics, in 1966, for logic.

SET THEORY AND THE CONTINUUM HYPOTHESIS (DOVER BOOKS ON MATHEMATICS) BY PAUL J. COHEN PDF

How if there is a website that enables you to hunt for referred publication **Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen** from all around the globe author? Immediately, the website will be extraordinary finished. Numerous book collections can be discovered. All will be so simple without complex thing to relocate from website to website to obtain guide Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen really wanted. This is the website that will give you those requirements. By following this site you can obtain great deals varieties of publication Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen compilations from versions types of writer as well as publisher popular in this world. The book such as Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen and also others can be obtained by clicking good on web link download.

When obtaining this e-book *Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen* as reference to check out, you can acquire not just inspiration however also new understanding and lessons. It has greater than typical advantages to take. What sort of e-book that you review it will be useful for you? So, why should get this book qualified Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen in this post? As in web link download, you could get guide Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen by online.

When obtaining the e-book Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen by online, you could review them any place you are. Yeah, even you remain in the train, bus, waiting list, or other places, on-line e-book Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen can be your excellent buddy. Every time is an excellent time to review. It will boost your understanding, enjoyable, entertaining, lesson, and also encounter without spending more cash. This is why on the internet book Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen comes to be most desired.

SET THEORY AND THE CONTINUUM HYPOTHESIS (DOVER BOOKS ON MATHEMATICS) BY PAUL J. COHEN PDF

This exploration of a notorious mathematical problem is the work of the man who discovered the solution. The independence of the continuum hypothesis is the focus of this study by Paul J. Cohen. It presents not only an accessible technical explanation of the author's landmark proof but also a fine introduction to mathematical logic. An emeritus professor of mathematics at Stanford University, Dr. Cohen won two of the most prestigious awards in mathematics: in 1964, he was awarded the American Mathematical Society's Bôcher Prize for analysis; and in 1966, he received the Fields Medal for Logic.

In this volume, the distinguished mathematician offers an exposition of set theory and the continuum hypothesis that employs intuitive explanations as well as detailed proofs. The self-contained treatment includes background material in logic and axiomatic set theory as well as an account of Kurt Gödel's proof of the consistency of the continuum hypothesis. An invaluable reference book for mathematicians and mathematical theorists, this text is suitable for graduate and postgraduate students and is rich with hints and ideas that will lead readers to further work in mathematical logic.

- Sales Rank: #772098 in eBooks
- Published on: 2012-08-15
- Released on: 2012-08-15
- Format: Kindle eBook

About the Author

A renowned mathematician, professor, and theorist, the late Paul J. Cohen won two of the most prestigious awards in mathematics: the American Mathematical Society's Bôcher Prize in 1964, for analysis; and the Fields Medal, the "Nobel Prize" of mathematics, in 1966, for logic.

Most helpful customer reviews

88 of 92 people found the following review helpful.

All-time classic -- a "desert island book"

By Joe Shipman

Paul Cohen's "Set Theory and the Continuum Hypothesis" is not only the best technical treatment of his solution to the most notorious unsolved problem in mathematics, it is the best introduction to mathematical logic (though Manin's "A Course in Mathematical Logic" is also remarkably excellent and is the first book to read after this one).

Although it is only 154 pages, it is remarkably wide-ranging, and has held up very well in the 37 years since it was first published. Cohen is a very good mathematical writer and his arrangement of the material is irreproachable. All the arguments are well-motivated, the number of details left to the reader is not too large, and everything is set in a clear philosophical context. The book is completely self-contained and is rich with hints and ideas that will lead the reader to further work in mathematical logic.

It is one of my two favorite math books (the other being Conway's "On Numbers and Games"). My copy is falling apart from extreme overuse.

51 of 54 people found the following review helpful.

Definitive and Brilliant
By Amazon Customer
This is still the definitive work on set theory and the continuum hypothesis. Although extremely terse, it is wonderfully clear and unburdened by the technical and pedantic details that doom many books in the subject. If you cannot track this down right now be patient, the American Mathematical Society is going to be reprinting it.

Professor Cohen passed away in March of 2007, but thankfully this book remains as a testament to his genius. Originally trained as an analyst, he began working on the continuum hypothesis knowing almost nothing about logic or set theory. Within two years he mastered the subject and solved the greatest outstanding problem in the field (and arguably in all of mathematics). Read this book if you want to understand one of the deepest ideas in all of human thought.

27 of 29 people found the following review helpful.
A readable and approachable book on set theory and cardinal numbers
By Vincent Poirier
As a work of science, "Set Theory and the Continuum Hypothesis" stands on a par with Darwin's "On the Origin of Species". First, like Darwin's book, Cohen's work is a profound contribution to its field; second it is also accessible to any educated and interested reader, although with some effort.

This edition is a reproduction of the first edition. You might be shocked by the type-this is a plain, typewritten document with no illustrations (I find it charming)-but Paul Cohen's crystal clear prose makes the book eminently readable.

=WHAT YOU NEED=

This is a graduate level book but you don't need to be a graduate student in mathematics to understand it. You do need a laymen's interest in mathematics; for instance you should enjoy reading Euclid, Ian Stewart, Douglas Hoftstadter, Martin Gardner. If you've enjoyed Douglas Hofstadter's "Gödel, Escher, and Bach" then there is no reason you can't understand this book.

=WHAT IT DELIVERS=

First, Cohen gives a barebones but complete introduction to formal logic and logical notation.

Then he describes formal set theory, known as Zemerlo Frankel set theory, the foundation of all mathematics as it stands today.

Having spent half the book on the necessary background, Cohen arrives to his main topic, the Continuum Hypothesis and whether it is true or false.

=WHAT COHEN SAYS=

ST&CH proves that a long standing problem in mathematics (the Continuum Hypothesis) has no solution. What does this mean?

Most mathematicians believe in a scaled down version of Hilbert's Programme. Hilbert hoped that all of mathematics followed from a small collection of definitions and axioms, much like all of geometry was once believed to follow from Euclid's five axioms. Formal set theory, as defined by Zemerlo and Frankel, seemed to provide all the axioms needed for this task. However Kurt Gödel proved that the programme is impossible to realize: any formal system will have propositions that are possible to state but impossible to prove. In other words, no set of axioms can completely define all of mathematics.

Paul Cohen proved that the Continuum Hypothesis is one such statement. But what is this hypothesis? It's about cardinal numbers. A cardinal is a property of a set; specifically it says how many elements there are in a set. For example, the cardinal for the set of all positive odd integers smaller than ten is five because the set {1, 3, 5, 7, 9} has five elements in it.

What about infinite sets? The simplest infinite set we know is the set of Natural Numbers, call it N, and N={1,2,3, ...} . N has an infinite number of elements. What about if we add zero as an element and call the new set N*? Do we get a bigger set? In one way, N* is "bigger" than N because it has all the elements N has but it also has an extra element, "0". But that's not the right way to think about big or small when we talking about sets. We want to know if the cardinal of N* is bigger than the cardinal of N. It isn't.

It's easy to see this. Let's create a new set made up of all the possible ways of writing words with the letter "a" and call this set A. Well, obviously A={a, aa, aaa, aaaa, aaaa, ...}. Now it's obvious that A does not contain N or N*, and vice versa. But can we say A is smaller than or bigger than or the same size as N or N*? Yes we can. Let's start with the natural numbers N. We can say 1 is the first element of N, that 2 is the second element of N, that 3 is the third, and so on. Likewise, we can say a is the first element of A, aa is the second element of A, aaa, is the third, and so on.

Now, bear with me here. We can also say that 0 is the first element of N*, 1 is the second element of N*, 2 is the third element of N*, and so on. So A, N, and N* seem to all have an infinite number of elements that can all be listed, or put in a one-to-one correspondence with each other. They are of the same size, they have the same cardinal, and we call that cardinal number Aleph Null (? is a Hebrew letter). We also say that sets with cardinal Aleph Null are countable, because we can count all their elements one after the other.

The set of positive and negative whole numbers, Z, is also countable. We think of Z={..., -2, -1, 0, 1, 2, 3,...} but we can also write Z={0, 1,-1, 2, -2, 3, -3,...} and it's now easy to see that Z is countable. Surprisingly, the set of all rational numbers (Q, the set of all fractions and whole numbers) is also countable. A rational number is a ratio of two whole numbers, a/b where b is never 0. We can certainly list all pairs of whole numbers in a set called P={(0,1), (1,1), (0,-1), (1,-1),(-1,1), (-1, -1), (0,2),(1,2),(2,2),(-1,2),...}. Since many of these pairs reduce to the same thing, for example (1,2) and (2,4) are both the same as 0.5, Q is a subset of P. So if P is countable, Q is countable.

But what about other numbers? The set of real numbers, called R, is the set of all numbers that can be represented by a point on a line. All the rational numbers (Q) can be represented by a point on a line, but there are many numbers on the line that are not rational. The square root of two or Pi are two famous examples. Are all the numbers on the line countable? It turns out that they are NOT countable. No matter how you list them, you will always find a number that cannot fit anywhere in the list you made. The set R is not countable, so we say it is uncountable.

It is in this sense that we say the set of Real Numbers is bigger than the set of Natural Numbers. We say that the cardinal of R is Aleph One. The Continuum Hypothesis states that there are no cardinals between Aleph Null and Aleph One; that there is no such thing as a set that is bigger than the Natural Numbers but smaller than the Real Numbers.

We owe the above discoveries to a nineteenth century German mathematician named Georg Cantor. He first stated the Continuum Hypothesis and he spent years trying unsuccessfully to prove it. In the 1930s, Kurt Gödel proved that if you assumed that the Hypothesis was true, you did not contradict formal set theory.

In 1964 Paul Cohen proved that if you assumed the Hypothesis was false, you did not contradict formal set theory either. And so he shows that in the context of set theory the Continuum Hypothesis is unprovable.

What is now the way forward? Cohen thinks that one day we will feel the Hypothesis is obviously false. (He underlines the word "obviously".) This means that set theory will have to be perfected, perhaps by adding a single simple axiom that is "obvious" and that results, as a consequence, in a proof that the Hypothesis is false. But with the same humility we find in Darwin, he leaves the problem for future generations to solve.

Vincent Poirier, Montreal

See all 12 customer reviews...

SET THEORY AND THE CONTINUUM HYPOTHESIS (DOVER BOOKS ON MATHEMATICS) BY PAUL J. COHEN PDF

Be the first which are reading this **Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen** Based upon some factors, reading this publication will certainly supply even more advantages. Even you should review it pointer by action, page by web page, you can complete it whenever and wherever you have time. When much more, this on the internet e-book Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen will certainly give you very easy of checking out time as well as task. It also provides the experience that is economical to reach and also get substantially for much better life.

About the Author
A renowned mathematician, professor, and theorist, the late Paul J. Cohen won two of the most prestigious awards in mathematics: the American Mathematical Society's Bôcher Prize in 1964, for analysis; and the Fields Medal, the "Nobel Prize" of mathematics, in 1966, for logic.

Beginning with visiting this site, you have attempted to start nurturing checking out a publication Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen This is specialized website that market hundreds compilations of books Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen from whole lots sources. So, you won't be bored more to select guide. Besides, if you likewise have no time to search guide Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen, simply rest when you're in office and also open the web browser. You could find this Set Theory And The Continuum Hypothesis (Dover Books On Mathematics) By Paul J. Cohen inn this website by attaching to the internet.