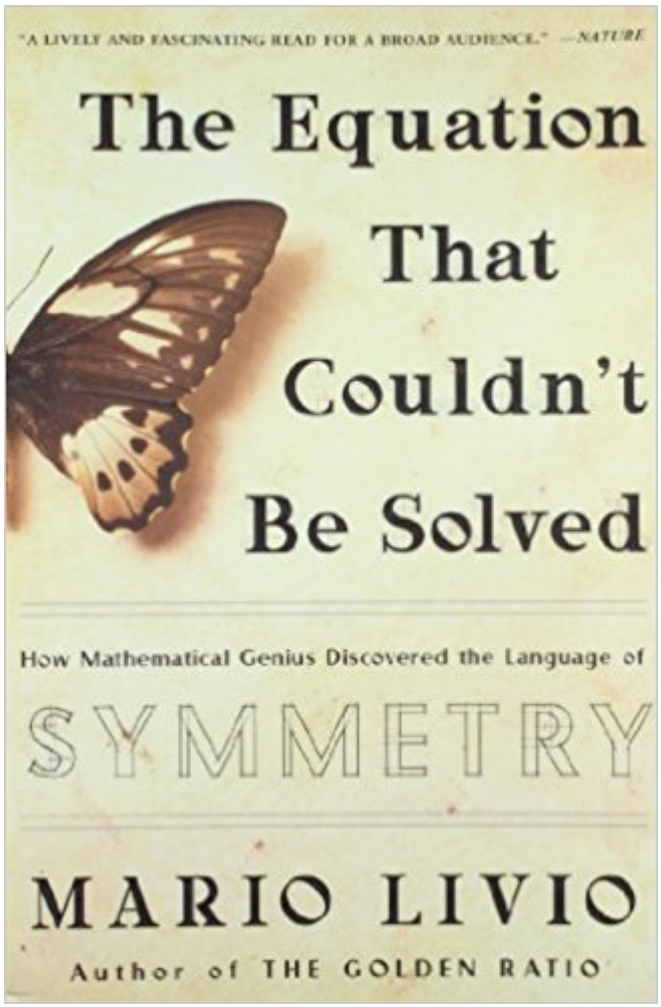
The Equation That Couldn't Be Solved: How Mathematical Genius Discovered The Language Of Symmetry



Synopsis

What do Bach’s compositions, Rubik’s Cube, the way we choose our mates, and the physics of subatomic particles have in common? All are governed by the laws of symmetry, which elegantly unify scientific and artistic principles. Yet the mathematical language of symmetry-known as group theory-did not emerge from the study of symmetry at all, but from an equation that couldn’t be solved. For thousands of years mathematicians solved progressively more difficult algebraic equations, until they encountered the quintic equation, which resisted solution for three centuries. Working independently, two great prodigies ultimately proved that the quintic cannot be solved by a simple formula. These geniuses, a Norwegian named Niels Henrik Abel and a romantic Frenchman named Ã‰variste Galois, both died tragically young. Their incredible labor, however, produced the origins of group theory. The first extensive, popular account of the mathematics of symmetry and order, The Equation That Couldn’t Be Solved is told not through abstract formulas but in a beautifully written and dramatic account of the lives and work of some of the greatest and most intriguing mathematicians in history.

Book Information

Paperback: 368 pages

Publisher: Simon & Schuster; Reprint edition (September 1, 2006)

Language: English

ISBN-10: 0743258215

ISBN-13: 978-0743258210

Product Dimensions: 6.1 x 0.7 x 9.2 inches

Shipping Weight: 12 ounces (View shipping rates and policies)

Average Customer Review: 4.2 out of 5 stars 40 customer reviews

Best Sellers Rank: #487,474 in Books (See Top 100 in Books) #60 inÂ Books > Science & Math > Mathematics > Pure Mathematics > Group Theory #424 inÂ Books > Science & Math > Mathematics > History

Customer Reviews

The idea of symmetry has been heavily deployed in recent science popularizations to introduce advanced subjects in math and physics. This approach usually backfiresâ ”mathematical symmetry is much too difficult for most laypeople to understand. But this engaging treatise soft-pedals it in a crowd-pleasing way. The title’s formula is the "quintic" equation (involving x raised to the fifth power), the analysis of which gave rise to "group theory," the mathematical apparatus scientists use

to explore symmetry. Inevitably, the author’s attempts to explain group theory and its applications in particle physics and string theory to a general audience fall sadly short, so readers will just have to take his word for the Mozartean beauty of it all. Fortunately, astrophysicist Livio (The Golden Ratio) keeps the hard stuff to a minimum, concentrating instead on interesting digressions into human interest (e.g., the founder of group theory, Evariste Galois, was a revolutionary firebrand who died in 1832 at age 20 in a duel over "an infamous coquette"), pop psychology (women have more orgasms when their partners have symmetrical faces), strategies for finding a soul mate and some easy math puzzles readers might actually solve. The result is a somewhat shapeless but intriguing excursion. Photos. Copyright Â© Reed Business Information, a division of Reed Elsevier Inc. All rights reserved. --This text refers to an out of print or unavailable edition of this title.

The so-called quintic equation resisted solution for three centuries, until two brilliant young mathematicians independently discovered that it could not be solved by any of the usual methods — and thereby opened the door to a new branch of mathematics known as group theory. This book is the story of these two early 19th-century mathematicians— a Norwegian, Niels Henrik Abel, and a Frenchman, Evariste Galois, both of whom died tragically, Galois in a duel at the age of 20. Livio, an astrophysicist now at the Space Telescope Science Institute and author of The Golden Ratio, interweaves their story with fascinating examples of how mathematics illuminates a wide swath of our world. Editors of Scientific American --This text refers to an out of print or unavailable edition of this title.

Well written it gives the history of the main characters involved in the theory as well as the mathematics in the simplest way that is understandable for nonprofessionals as swell although some previous knowledge might be helpful.

Mario Silvio has a knack for explaining difficult mathematical concepts in clear and easy to understand language. For the reader not familiar with mathematics beyond high school, this is a wonderful book to learn about the beauty of mathematics.

I liked the book because it is general enough for a non-expert, but has enough pointers to research in a topic of interest.It makes mathematics more humane - showing that the significant ideas take time to mature and to be understood by the scientific community.I recommend it to any engineering student wanting to know better the background faced by these geniuses when they discovered or

created these topics.It doesn't get five starts because it is a little confusing sometimes, getting too deep into an issue before moving to a completely different one. I had to re-read some pages back to understand where the book was going. Except for that, a very nice book on general math history.

Excellent reading for the math/science inclined!Wish I had found this information years ago. It's amazing that one can go through nine years of college and not get exposed to this.

Very good

Out of the many books on symmetry, this one offers a gentle and inviting road to follow.There is beauty, knowledge and good questions to entice the reader.

Interesting book on the history of solving polynomials, enjoying it.

Great condition

Principles of Genius: The Key to Unlocking Your Hidden Genius Potential Genius Deck Number Puzzles (Genius Decks) The Accidental Billionaires: The Founding of Facebook: A Tale of Sex, Money, Genius and Betrayal A Tale of Sex, Money, Genius and Betrayal E=mc2: A Biography of the World’s Most Famous Equation