



# **How Math Explains the World: A Guide to the Power of Numbers, from Car Repair to Modern Physics**

*James D. Stein*

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## How Math Explains the World: A Guide to the Power of Numbers, from Car Repair to Modern Physics James D. Stein

In *How Math Explains the World*, mathematician Stein reveals how seemingly arcane mathematical investigations and discoveries have led to bigger, more world-shaking insights into the nature of our world. In the four main sections of the book, Stein tells the stories of the mathematical thinkers who discerned some of the most fundamental aspects of our universe. From their successes and failures, delusions, and even duels, the trajectories of their innovations—and their impact on society—are traced in this fascinating narrative. Quantum mechanics, space-time, chaos theory and the workings of complex systems, and the impossibility of a "perfect" democracy are all here. Stein's book is both mind-bending and practical, as he explains the best way for a salesman to plan a trip, examines why any thought you could have is imbedded in the number  $\pi$ , and—perhaps most importantly—answers one of the modern world's toughest questions: why the garage can never get your car repaired on time.

Friendly, entertaining, and fun, *How Math Explains the World* is the first book by one of California's most popular math teachers, a veteran of both "math for poets" and Princeton's Institute for Advanced Studies. And it's perfect for any reader wanting to know how math makes both science and the world tick.

## How Math Explains the World: A Guide to the Power of Numbers, from Car Repair to Modern Physics Details

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## **From Reader Review How Math Explains the World: A Guide to the Power of Numbers, from Car Repair to Modern Physics for online ebook**

### **Christiana says**

There is a reason I wasn't a math or physics major.

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### **Jenny GB says**

I read about half of this book and then decided I couldn't read anymore. It's not that it was all bad, but I felt that it jumped around too much and the thesis of explaining the world really wasn't coming through for me. In fact, it seemed like more of the opposite and Stein was continually explaining what math couldn't do or what physics couldn't fully explain. Frequently the historical information about mathematicians was entertaining and several of Stein's examples to illustrate the math or science were well explained and interesting. However, the depth of math and science required without illuminating the broader purpose or application of most of these techniques did it in for me in the end. I guess I wanted more examples and real life application and less abstract ideas and this wasn't giving it to me.

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### **Anna says**

This is the book dedicated to all those who had a very bad math teacher in high school and who never understood why they have been taught logs and probabilities. A nice summary with unexpected "mathy" jokes about the development of mathematics.

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### **David02139 says**

From what I know of math and physics, a good overview of open questions and how math and physics are similar

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### **Ami Iida says**

it is a good book but is too redundancy .....

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### **MikeFromQueens says**

There were some interesting chapters in the book, though it was heavier on modern physics than the other,

readily accessible areas of the world we actually interact with.

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### **Jim says**

I never fully got the organization of this book, but I enjoyed the variety of math issues considered, even if I didn't learn to solve any of them. The theme seems to be a look at the Clay Mathematics Institutes seven critical problems with an offer of \$1Million for each solution.

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### **Corin says**

I really enjoyed this book. It started slooowly, but once I got into it, I had a lot of fun reading it. It also got my teenaged daughter interested in mathematical concepts (not just calculations)... very cool!

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### **Collin Bryant says**

This book had an odd layout of information. There were some interesting concepts here and there, but I found myself having a hard time staying interested in the majority. The concepts were easy enough to understand without having taken anything higher than calculus. I would recommend this to people who have nothing better to do and have a basic interest in how mathematics is integrated into everyday things.

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### **Katharine Rudzitis says**

The author shows how math is important and essential for a variety of things: physics, why your car takes forever to repair at the auto shop, etc. Some examples are surprising! Accessible to curious people who finished high school math.

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### **Kathleen says**

This book was presented in exactly the way I like pop-math books to be written--with loads of pop-science examples. The math involved was just the right proportion of actual equations and examples, without reminding one too much of the text book she ought to be working from instead of reading popular books. As an overarching thesis, of course, the book is concerned with mathematics as a model--examples such as the Traveling Salesman Problem, Instant Runoff Voting, and the thermodynamics of melting ice abound--but Stein also isn't limited by his thesis. Meaning that he gives plenty of weight to Cantor's infinities, Godel's incompleteness, and other lofty mathematical ideas. Therefore, what makes this book superior to other pop-math books is that Stein interweaves the ideas of topology with relativity, gives dramatic historical anecdotes about solving cubic polynomials, and generally presents mathematics in some interesting or amusing context.

Not that math isn't already interesting and amusing, but cookies are better with chocolate chips.

I highly recommend this book for your daily requirement of analytical thinking.

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### **Jeff says**

loved it. great re-grounding in math.

only problem is i think it was mis-titled. should have been called: all the places math falls short in explaining the world.

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### **Cbpax says**

NOT light reading but a good read for Math/Science.

I thought it would be helpful for teaching Math next year but I have found better History of Math books. I did find a wealth of quotes I liked though and some thought provoking chapters. Of course Math doesn't explain ALL of life/the world. Like why my internet connection breaks down at the most inconvenient times or why some people dislike cats. Random things. Of course the people who want to win in Las Vegas should understand probability. And we all need to know how to balance the checkbook and pay taxes. Soon we can just send the paycheck to Washington and be done with it..

I liked the chapters on Quantum physics but I'm weird that way. Most won't like those chapters.

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### **Beth639 says**

Good popular math book but not as readable as some. Not as connected to "explaining the world" as the title implies. I thought I was going to get connections I could share with my high school class but came up short. Good overview of mathematical advances though.

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### **Holly says**

Dipped in and out. Got a bit bored.

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