



WEIRD MATHS

At the Edge of Infinity and Beyond

David Darling & Agnijo Banerjee

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Is anything truly random?

Does infinity actually exist?

Could we ever see into other dimensions?

In this delightful journey of discovery, David Darling and extraordinary child prodigy Agnijo Banerjee draw connections between the cutting edge of modern maths and life as we understand it, delving into the strange – would we like alien music? – and venturing out on quests to consider the existence of free will and the fantastical future of quantum computers.

Packed with puzzles and paradoxes, mind-bending concepts and surprising solutions, this is for anyone who wants life's questions answered – even those you never thought to ask.

After getting his PhD in astronomy from Manchester University, David worked for the supercomputer company Cray Research in Minneapolis for five years before becoming a full-time freelance science writer. Over the past 35 years, he's written about 50 books including a New York Times notable book of the year *Equations of Eternity*, *Deep Time*, *The Universal Book of Mathematics*, and *We Are Not Alone*. He lives in Dundee with his wife and has two grown-up children and three grandchildren. He is also a songwriter and singer, and is currently working on a rock musical.

Agnijo Banerjee's parents realized that he had an exceptional talent early on in primary school. At the age of 8, he memorized the Periodic Table from a poster hung in his room. In primary school, he regularly attended classes two years ahead of his age, and in P6 started doing maths in secondary school. He took his Highers in S1 and Advanced Highers in S3

getting 100%. At the age of 12, he scored full marks in the Mensa test and was assessed as having an IQ of 162 (the highest possible on the Mensa scale).

Agnijo first came to David for maths and science tuition when he was 12. One of the first questions David asked him was the “Hole in the Earth” problem – if you drop an object down a hole in the Earth, how long will it take to come out at the other side? Although Agnijo had never seen the problem before he was quickly able to figure out the answer. He also borrowed a copy of David’s Universal Book of Mathematics and not only read the book in a week but found several mistakes that David and his reviewers had missed!

A couple of years ago, David suggested that they write a book together and *Weird Maths* was the result.

For further information / interview requests please contact Kate Bland in the Oneworld Publicity Office: kbland@oneworld-publications.com / 020 7307 8909

‘Darling and Banerjee take us on a captivating ride through a vast landscape of mathematics, touching on mesmerising topics that include randomness, higher dimensions, alien music, chess, chaos, prime numbers, cicadas, infinity, and more. Read this book and soar.’

Clifford A. Pickover, author of *The Math Book: From Pythagoras to the 57th Dimension*

‘A glorious trip through some of the wilder regions of the mathematical landscape, explaining why they are important and useful, but mostly revelling in the sheer joy of the unexpected.

Highly recommended!’ **Ian Stewart, author of *Significant Figures***

WEIRD MATHS Facts

1. Using advanced technology, including data from a 3D scanner and direct brain-computer links, it might be possible for us to see in four dimensions.
2. In 1996 researchers found a formula that lets any digit of pi (say the trillionth one) be calculated without knowing any of the previous digits.
3. There’s nothing that even the world’s most powerful computer can do that, given enough time, can’t be computed using Conway’s Game of Life – a game so simple a child can play it.



4. The greatest unsolved problem in maths, the Riemann hypothesis, effectively says that although it's uncertain where prime numbers will spring up, this uncertainty is as well controlled as it could possibly be. In other words, behind the scenes, the apparent indiscipline of primes is highly choreographed.
5. According to the Banach-Tarski paradox it's possible to cut up a ball into finitely many pieces and then rearrange the pieces to make two balls, each as big as the original.
6. There are infinitely many different infinities, each infinitely bigger than the one before.
7. The biggest lawsuit ever filed, by a New York man who claimed he was bitten by a rabid dog, was for 2 trillion trillion trillion dollars – far more money than there is on Earth.
8. According to the Ham Sandwich Theorem, it's always possible to slice a ham and cheese sandwich so that the two parts have an equal amount of bread, cheese, and ham.
9. One of the greatest shocks to mathematicians was the discovery, by Kurt Gödel, that in any mathematical system, there will always be things that are true but that can't be proved to be true.
10. In 2015, a team of researchers developed a program to play a form of poker that is so strong that it's effectively unbeatable by humans in the long run...

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