

The Story of Maths

A journey through the development of the key mathematical ideas that shape our world.



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Programme running: 4 x 60 mins Production: BBC

The Language of the Universe

Timekeeping motivated the world's oldest mathematical devices. In ancient cultures, the need to predict the phases of the moon made a lunar calendar especially useful for the hunters of antiquity. Anthropologists have discovered bones up to 37,000 years old, with 29 notches cut into them to represent the days of the month.

The first fully developed mathematical systems developed in Babylon, Egypt and Greece. Babylonian maths is based on a base 60 system, giving us 60 seconds in a minute, and 60 minutes in an hour. The mathematicians of Babylon also demonstrate that they must have been aware of Pythagoras's theorem – at least 1,000 years before Pythagoras was born.

The Genius of the East

In China, in around 200 BC, the Han Dynasty encouraged scholars to compile a book known as *The Nine Chapters*, which attempted to recover and preserve forever the lost teachings of the Chinese mathematicians of antiquity. The text is dedicated to solving practical, real-world problems; how to divide land or goods and how to manage building works.

India was the first civilisation to develop a number system with a special symbol to represent zero – one of the great landmarks in the development of mathematics.

The Frontiers of Space

Mathematical problems became spectator sports in 16th century, with generous prizes given to the winners. In such a competitive atmosphere, it's not surprising that mathematicians would jealously guard their knowledge – and in some cases, behave very badly. Girolamo Cardano, appeared to solve a problem known as the cubic, but he had stolen the solution, from a rival mathematician - Nicolo Tartaglia.



In England Isaac Newton developed calculus, which could account for the orbits of the planets, but spent the rest of his life embroiled in a dispute with a German mathematician over who developed it first.

To Infinity and Beyond

The computer revolutionised mathematics by enabling lightning speed calculations and helping mathematicians to “see” chaos, but proof without understanding has continued to unsettle mathematicians. Many argue that the pleasure of mathematics is to be found in the understanding of the problem, not simply a correct solution.

In 1900, French mathematician David Hilbert identified the most important unsolved mysteries confronting mathematics, laying down the roadmap for maths in the 20th century. 15 of the 23 problems have been fully or partly resolved and work continues on the rest.

Distributed by The Open University, Walton Hall, Milton Keynes, UK, MK7 6AA
To find out more, please contact our Sales Team on +44 (0) 1908 858077
email: ouw-broadcast-sales@open.ac.uk or visit our website at:

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