Continuous Mathematical Foundations: Introduction

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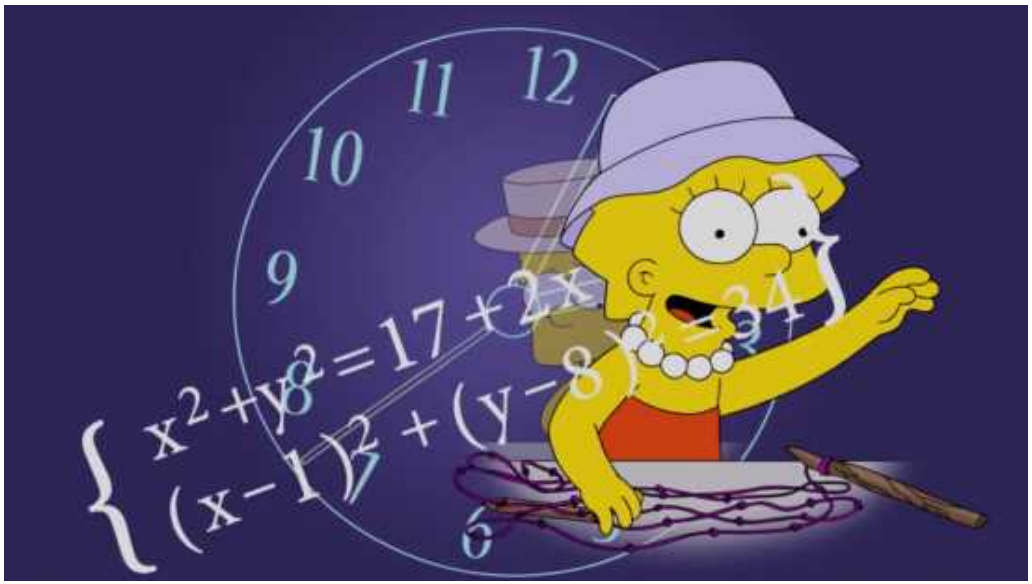
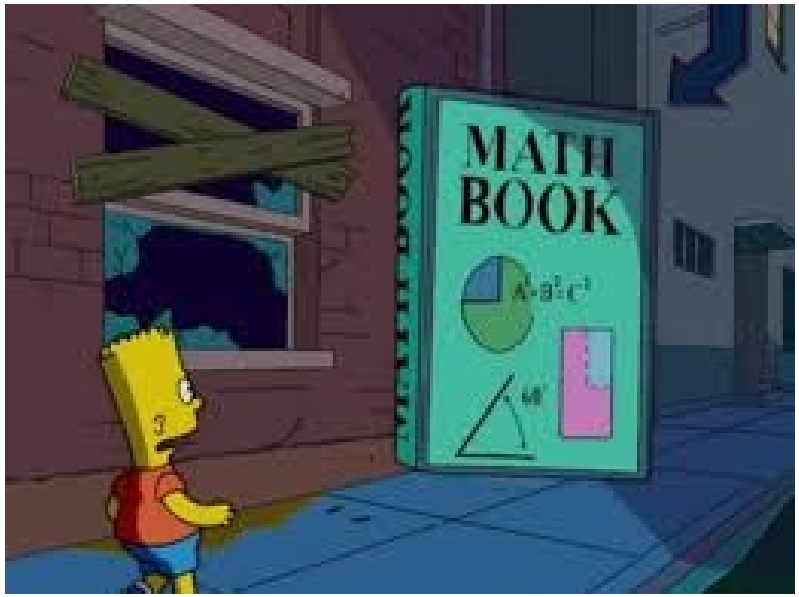
Math



Mathematicians



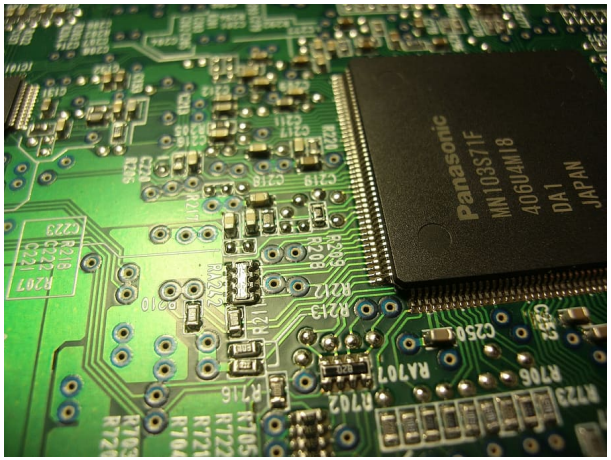
The rest of the world

Invention of Electrical Computers

Alan Turing and Bombe

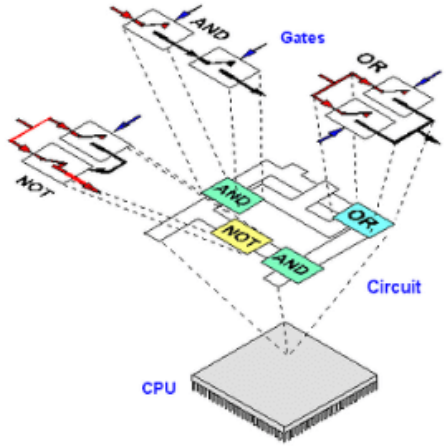
(not the actual picture)

Boolean algebra

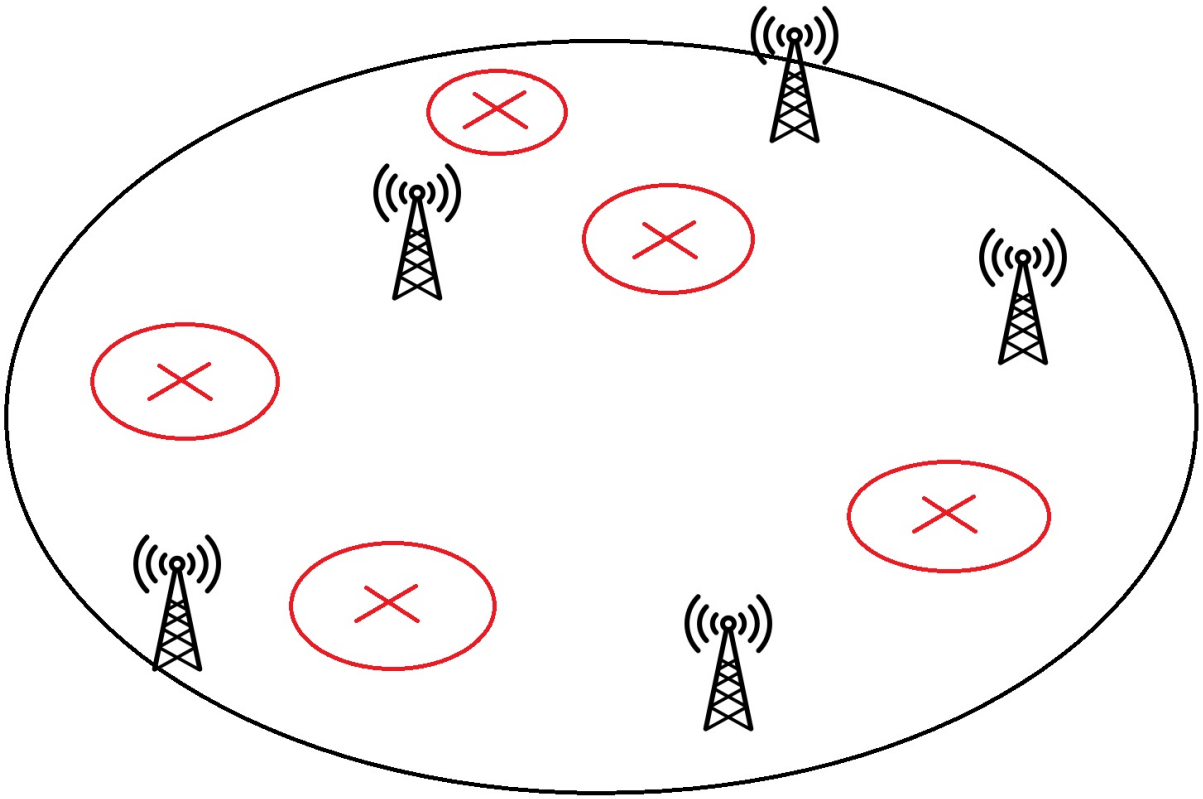


We represent electricity flowing in a cable with 1 and the absence with 0.

We set the system and observe if the results provide what we asked for.



How to place antennas?



Which is the life expectancy of the system? (RAID)

If you know that the average life expectancy of a disc is 4 years, in how many disks you have to store your data in order to be safe with high probability for 1 year?

Summarizing

- Math can be used to describe and interpret the behaviour of a computer system.
- Unexpected math problems appear while you work with informatics.
- Many Computer Science topics are mathematic hybrids, too, such as Machine Learning, Data Engineering, System Optimisation and Fault Detection and Quality Control.

Next Chapters

In this module we will examine topics from,

- Descriptive Statistics.
- Applied Probability.
- Linear Algebra.
- Calculus.

Module Goals

- Get familiar with basic mathematical concepts that are necessary for a BSc and above career level, such as Calculus, Algebra and Probability.
- Understand Computer Science topics from a mathematical aspect.