

# Mythology and history of numbers true or false

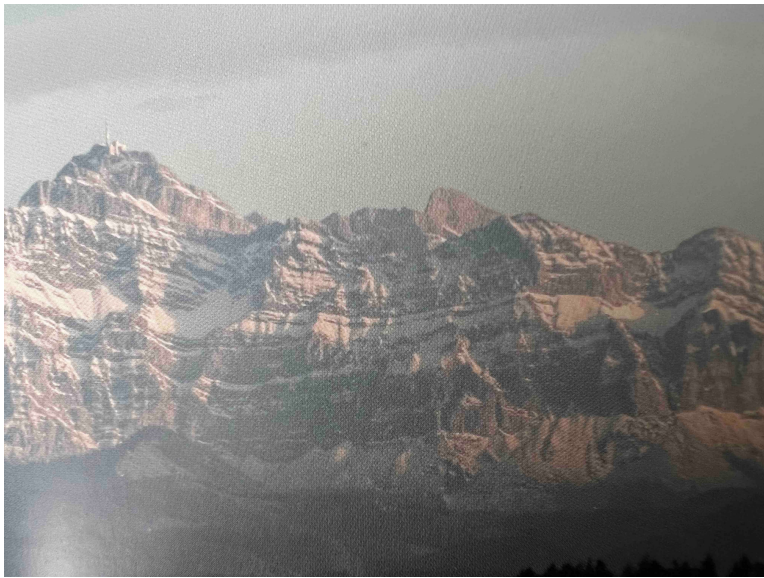


20,000 years ago people were still on the move. Shoe soles from the Ötztal and Seeland BE

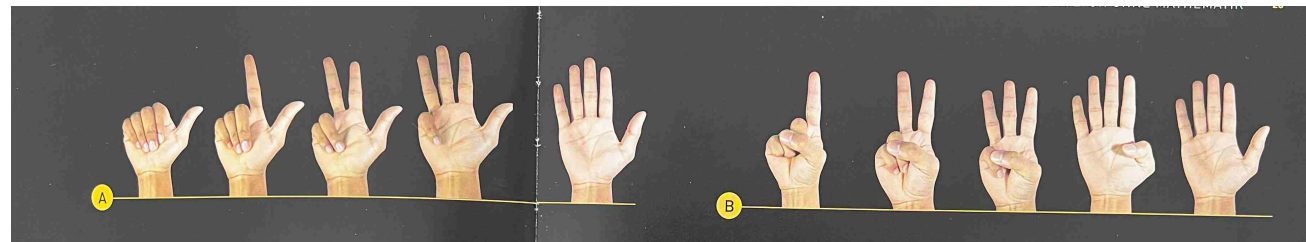


Ishango Bone: with prime number notches 11, 13, 17 and 19, age: approx. 20,000 years, location: Republic of Congo

# Pile dwellings in Hüttwilen (World Heritage Site) Figures for trade and inspection



Säntis, the holy mountain with a reclining virgin (known since 6000).

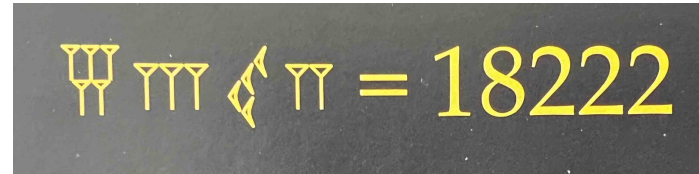


Counting with your finger, as old as mankind.  
Vessels with counting stones as a receipt (4000 BC.)

# Babylonian mathematics, 2000-600 BC

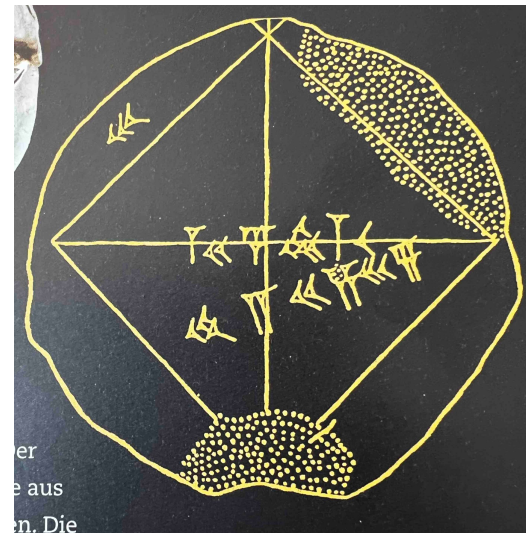


Völkerstaat: Sumerer (Sumerians 3000 BC))



3 Parts: 5 Ones, 3 Ones, 4 tens+2 ones (5+3+42)

$$5 \cdot 60^2 + 3 \cdot 60^1 + 42 \cdot 1 = 5 \cdot 3600 + 3 \cdot 60 + 42$$



Tone board with 3 numbers

side length  $0;30 = \frac{30}{60} = 0,5$

Diameter  $\frac{42}{60} + \frac{25}{60^2} + \frac{35}{60^3}$

3. Number:  $\sqrt{2}$

(6 positions exactly)

(The number 0 did not exist)



# Moon horns in Ürschhausen Mathematics in Agypthen,



Moon horns: Ürschhausen  
locations: In the house and around  
the house (use not exactly known).



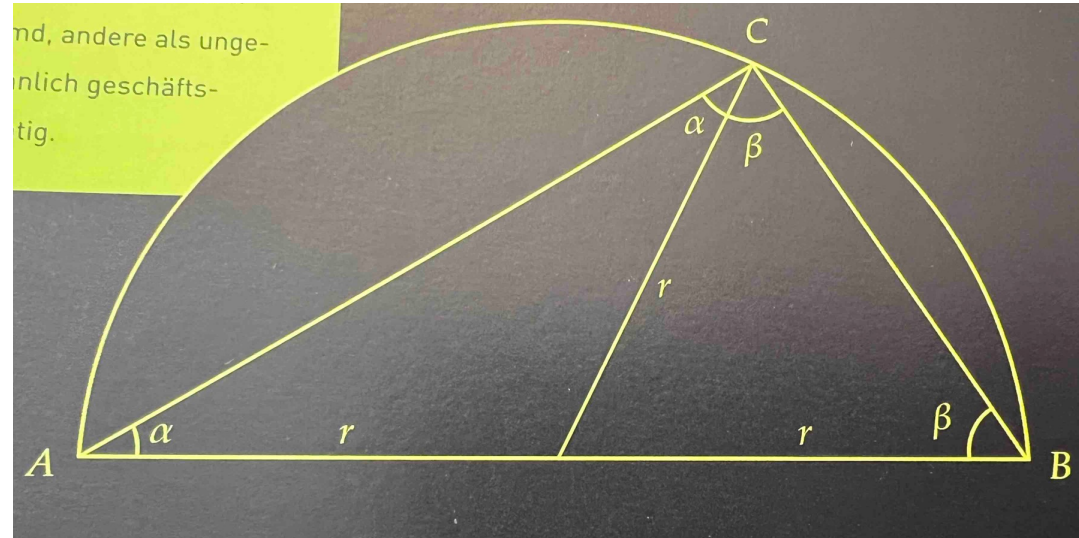
Egyptian mathematics (little known) 10 system,  
introduction to arithmetic  
(multiplication, division).



# 300 v.Chr.: Celts in the Seebachtal valley Phytagorans in Athens



Traces of a reconstructed  
grave hills from the  
Celtic period (Stammheim)



The birth of science.  
Greece: Mathematical theses and proofs

Mathematics as philosophy (less practical relevance)

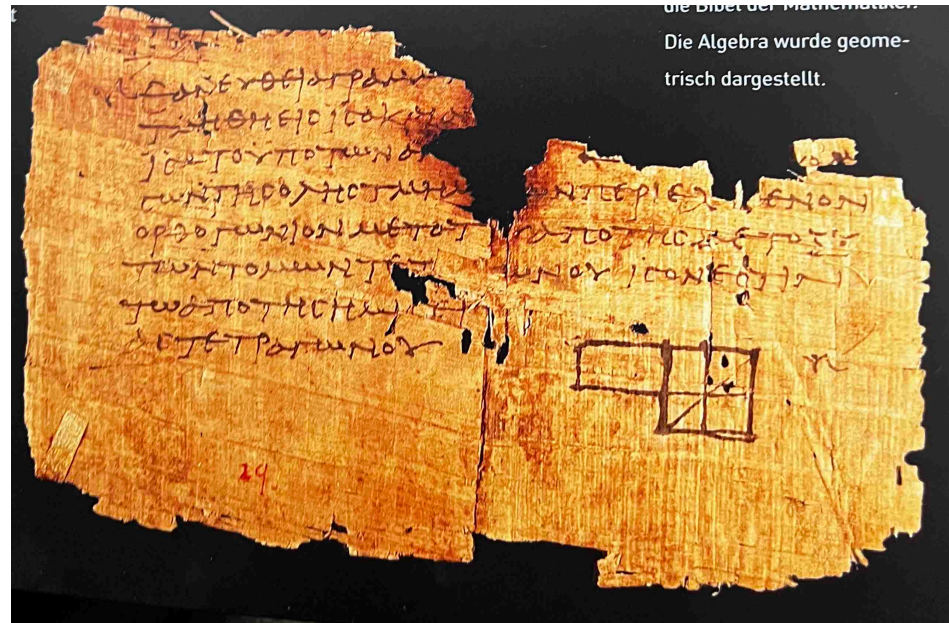
Thales, Phytagoras, The School of Athens

Erastotenes calculated the circumference of the earth: 39,400 km

# Mythology in Switzerland, power in Rome Philosophy in Greece



Otherworlds, Pagan culture, (*Heidnisch*)  
Mythical places  
Legend of the Rhine Falls (Reinau Island)



## Euclid's Elements

The most widely read book after the Bible and the Koran

Compilation of knowledge: Axioms, definitions and propositions. Standard work in mathematics to this day (13 volumes)

Example: Definition of parallelism.

# Politics, ethics and mathematics

## **Roman mathematics:**

The Romans had little interest in mathematics, their strengths lay in the military and technology.

## **Chinese mathematics:**

Focus on administration and calendar calculations  
Abacus is still used( math tool).

## **Indian mathematics:**

The Indians introduced the number zero.  
Indian achievement: the place value system

## **Arabic or Islamic mathematics:**

529 closed the school in Athens and went to India  
and 773 to Baghdad  
(Negative numbers were not used at this time)

2nd century AD: Summary of mathematics

The book „The Elements“

The heyday of astronomy

Mathematics was of little importance in Europe.

The only exception was the calculation of the date of Easter.  
However, the Babylonians were already able to calculate this.

In Europ, it was Gauss who first gave formulas  
for calculating the date of the Easter.

The Pascal's triangle (1623)

already appears in Chinese mathematics



# 1524 Ittinger Sturm Seebachtal and - Kartause

1000: Christianization

1414 - 1418: Concil in Constance (Jan Hus).

1524: Reformation (Zwingli, Luther)



## Education in Europe

**11th century: Cathedral schools of the monasteries**

1200: Universities: Bologna, Padua, Paris, Oxford  
Heidelberg, (Leonardo of Pisa: Fibonacci number)

1450: Turning point in the history of science)  
Columbus. Leonardo Da Vinci, Adam Riese,  
Galileo Galilei, Descart (Aanalysis)

1460: University of Basel  
Vocational training  
(guilds; Zünfte)

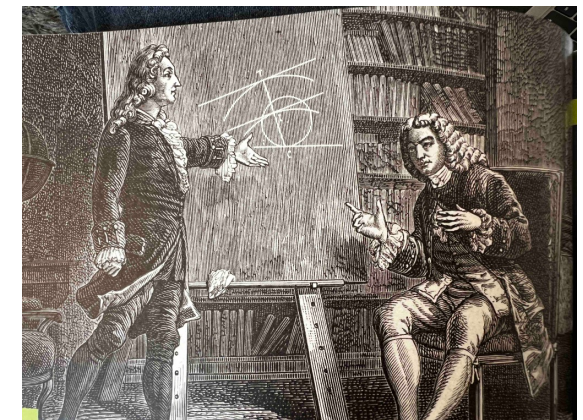
1654-1705. Jakob Bernulli

1700-1800: Leonard Euler

1832: Schulpflicht

1816: Siemens

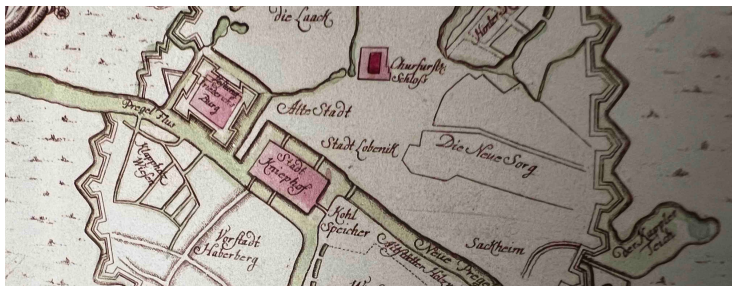
1879: Albert Einstein (ETH, Polytechnic)



# Two men who made history



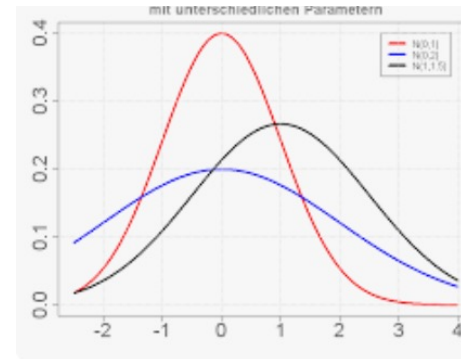
Leonard Euler 1703 - 1783



Garden in Kaliningrad, 1726 (Petersburg) Reduction to edges and nodes. 1st formulation in the field of graph theory and topology



Carl Freidrich Gauss 1777 - 1855



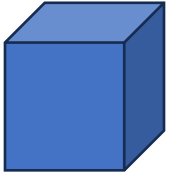
$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \cdot e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$$

Statistics, probability and AI

Math; abstract, unitless  
no limits  $\pm \infty$

Physics.  
Space and time, limited

IT und AI  
abstract ( $\vec{H}$  und  $B$ ) and limited



E-K+F=2 Polyhedron set Polyedersatz)  
(but you don't think without units)

**The Euler Identity:**

$$e^{j\pi} - 1 = 0$$

**The Relativity Theory:**

$$E = mc^2; \text{ (System limit } \vec{v}_c)$$

$$\Delta x > 0$$



Not error free  $\Delta t > 0$

New fields of mathematics: topology and graph theory (1900), information theory (1945)

**Open questions:**

**Prime number puzzle,  $\pi^2$ ; The shape of the universe? Poncaré's conjecture;  
Space and time dynamics, (black hole)**



# References

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