History of Mathematics

Historia est magistra vitae.

History is the teacher of life

Soldiers in Napoleon's army discovered the Rosetta Stone in 1799 while digging the foundations of an addition to a fort near the town of el-Rashid (Rosetta). On Napoleon's defeat, the stone became the property of the English under the terms of the Treaty of Alexandria (1801) along with other antiquities that the French had found.

The Rosetta Stone is a stone with writing on it in two languages (Egyptian and Greek), using three scripts (hieroglyphic, demotic and Greek).

The Rosetta Stone was carved in 196 B.C.

The Rhind papyrus,named after the Scottish Egyptologist A Henry Rhind, who purchased it in 1858, was written around 1650 BC by the scribe Ahmes who is copying a document which is 200 years older. It shows a number of practical mathematical problems, several of which are concerned with geometrical shapes.
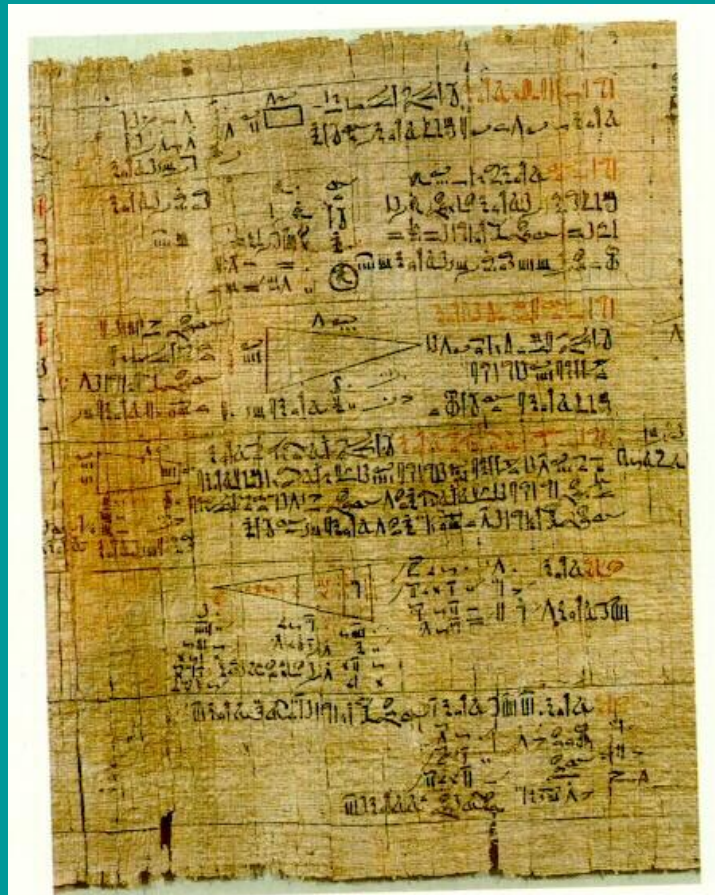
The Moscow papyrus contains only about 25, mostly practical, examples. The author is unknown. It was purchased by V. S. Golenishchev (d. 1947) and sold to the Moscow Museum of Fine Art.

Origin: 1700 BC. It is 15 feet long and about 3 inches wide.
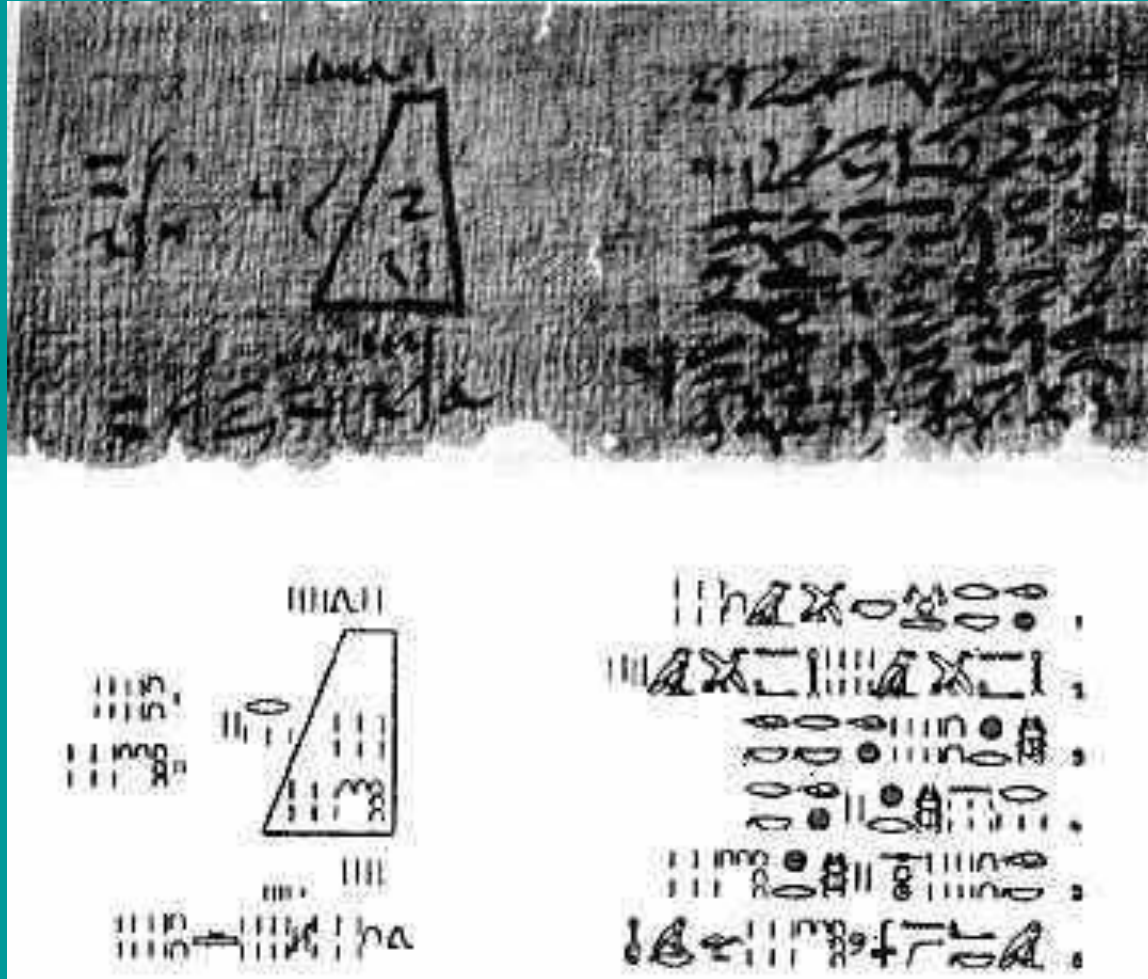
In Eastern Europe a bone was found with 55 notches in two series, 25 in the first series, and 30 in the second, they were both grouped in 5.
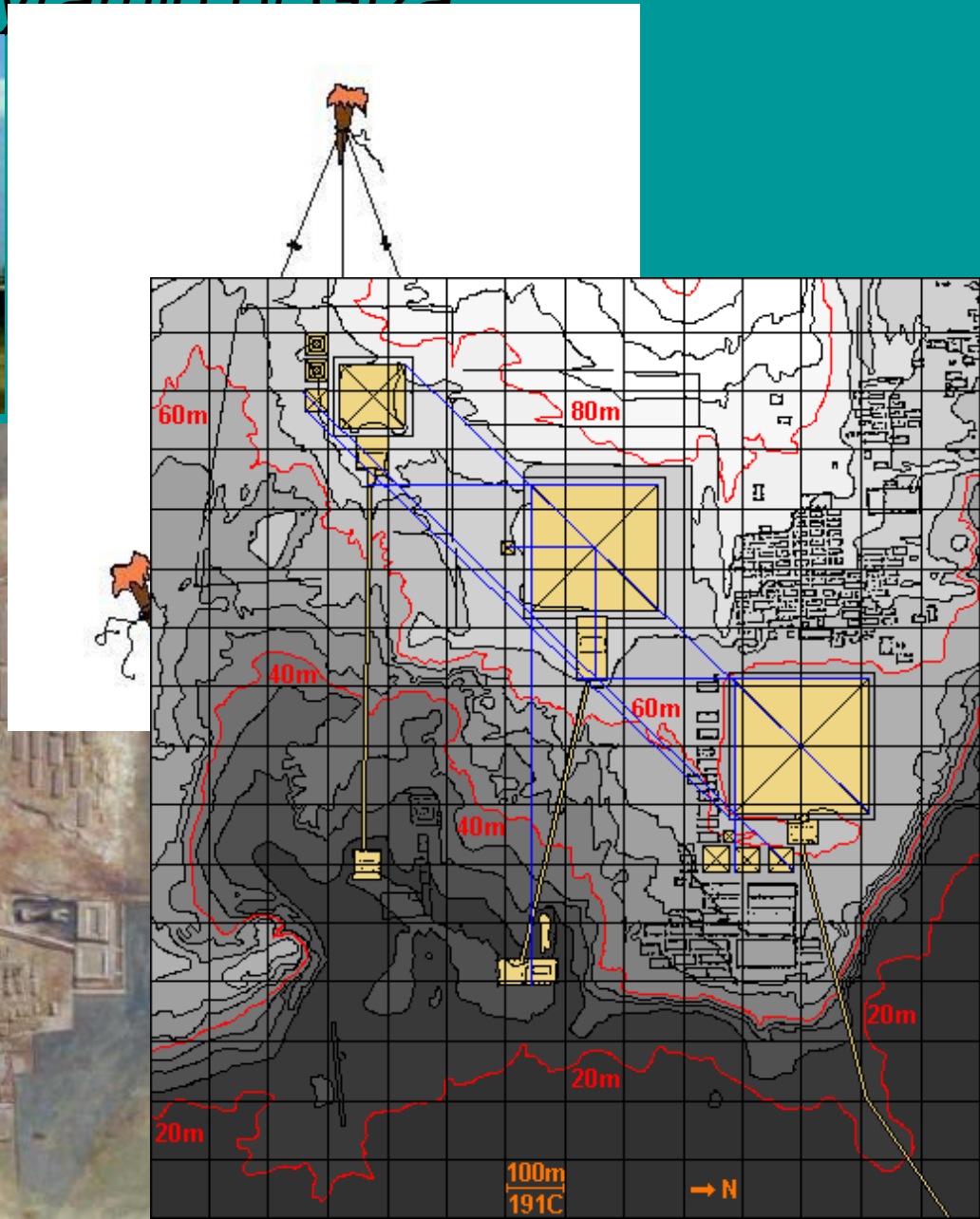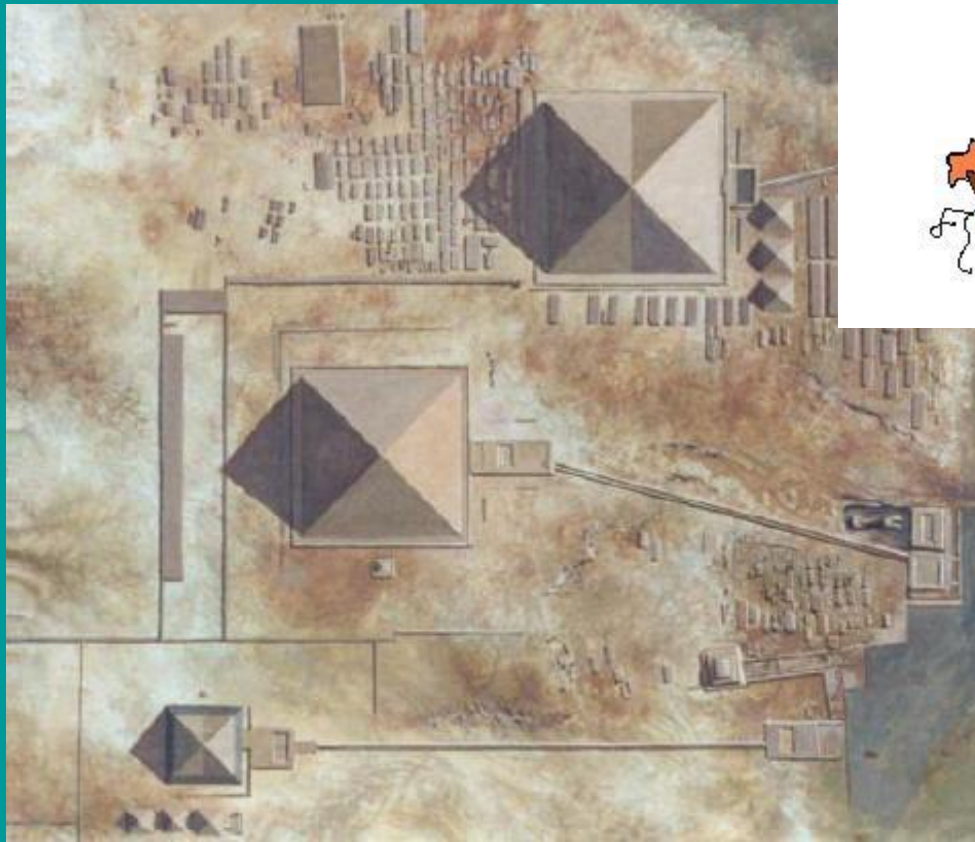
This is evidence that numbers emerged early, even before the invention of the wheel.

Ancient Greeks claim that Mathematics originated in Egypt.

The Pyramid of Khufu (the Great Pyramid)
Second Pyramid of Giza

Ancient Egypt
3000 BC – 260 AD

- In contact with other civilizations: Egypt and Babylonian

- First people to think about thinking, philosophy.

- Their mathematics used symbols, and was considered clumsy.

- They studied mathematics---why?

  -Herodotus claimed it was for practical needs.

  -Aristotle asserted that Priests had the time to study Mathematics.

Greeks made mathematics important

- To move up within the bureaucratic system people need to know mathematics.
- Given test--

  How much food was need for the army?

  How many bricks are needed for the building?

- Practice was the source from development
- Their focus was on algorithms, not proofs.

Rhind Papyrus &
Moscow Papyrus

- Contained examples of problems, and information about mathematics in about 2000 BC.

- It was used for future scribes, and contained lists of problems.

- There was no Algebra -- that will come 3000 years later

- Greeks correctly described the area of a square and area of trapezoid.

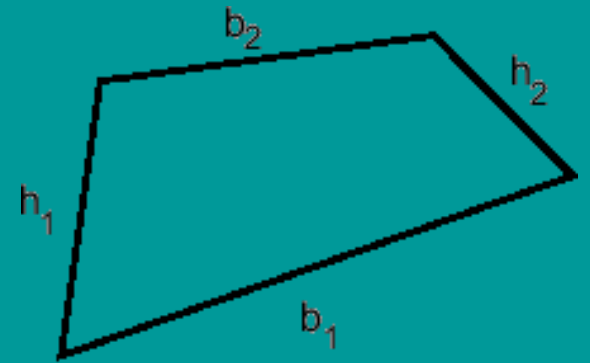# What may be examined when we look back 3000 years from now?

- The NCTM Principles and Standards.

What will be left behind…or what could be forgotten about?

- Difficulty in mathematics of inner city students.

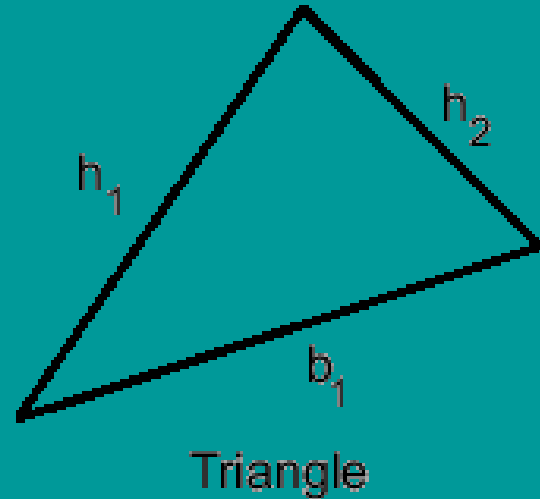# Let's look at a formula that was used to tax people for the land

$$A = \left(\frac{b_1 + b_2}{2} \right) \left(\frac{h_1 + h_2}{2} \right)$$

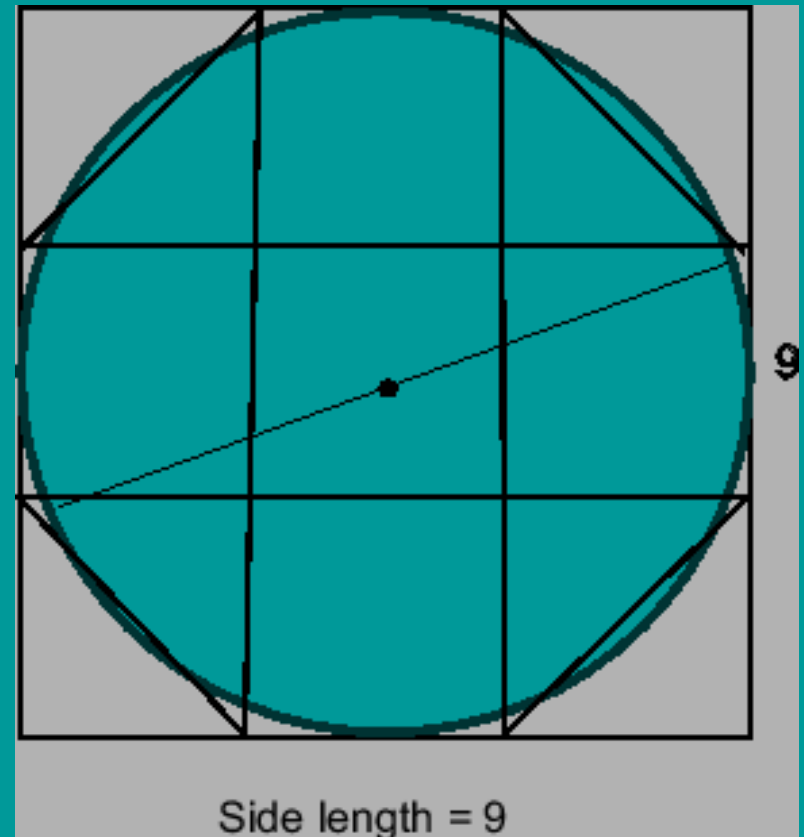Quadrilateral

Let's try using 3,4,5 triangle

$$A = \left(\frac{b_1}{2} \right) \left(\frac{h_1 + h_2}{2} \right)$$

Triangle

Rhind Papyrus - Problem 48 & 50 (1650 BCE)

- A circular field of diameter 9 has the same area as a square of side 8.
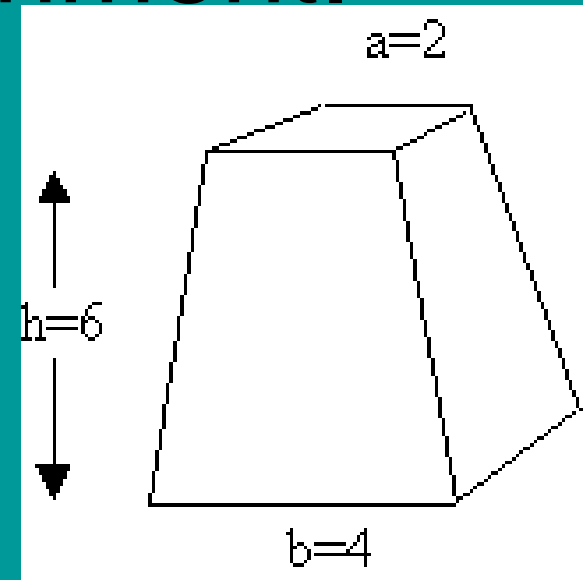
$$A = \left(d - \frac{1}{9}d \right)^2$$

9

Side length = 9

Mesopotamians found area of circle.
(2400 BCE)

$$A = \frac{1}{12}C^2$$

Greatest early accomplishment.

- Area of a pyramid

- Given a truncated pyramid of height 6, base 4, and top 2, you are to square the bottom, multiply the bottom by the top, square the top, and add all these to give 28. Then you are to multiply this by a third of the height to give the right answer. 56

From this statement, determine the area of a truncated pyramid.

$$V = \frac{h}{3}\left(a^2 + ab + b^2\right)$$

How did they figure this out??

- Could have used some form of Calculus.
- Used trial and error, which would have been time consuming.
- We misinterpreted the language, and it was only a trapezoid.