

# History of mathematics



**ASSIGN  
BUSTER**

- 180 BC Hypsicles: Number Theory

Hypsicles was born in 190 B. C. in Alexandria Egypt. He was a mathematician and astronomer. He wrote the “ Anaphorikos” or “ On the Ascension of Stars,” where he divided the Zodiac into  $360^\circ$  and used arithmetic progression, “ a sequence in which each number increases by the same amount over the previous one” (O’Connor & Robertson, 1999). He also wrote Book XIV of Euclid’s Elements, which was concerned with inscribing regular solids in a sphere ( *Hypsicles of Alexandria* , 2008).

Diophantus of Alexandria, writer of the Arithmetica, which was the most dominant number theoretic work of ancient times, explained properties of polygonal numbers and added a rule to get the  $n$  th  $m$  -agonal number,  $n [2 + (n - 1) (m - 2)]/2$ , which he credited to Hypsicles (Tattersall, 2005).

The number theory, a branch of mathematics, is concerned with the study of the integers, and of the objects and structures that naturally arise from their study ( *Number Theory*, 2004).

## References

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- 60 BC Geminus: Parallel Postulate

Geminus was a Greek mathematician and astronomer, who thrived in the 1st century B. C. Nothing is known about his personal life, but his works suggested the possibility that he lived or worked on Rhodes. The Theory of Mathematics, which discussed the logical subdivisions of the mathematical sciences, was attributed to Geminus ( *Geminus*, 2008). Geminus examined the principles behind concepts such as ‘ hypothesis’, ‘ theorem’, ‘ postulate’, ‘ axiom’, etc. and gave historical accounts of the development of the ideas (O’Connor & Robertson, 1999). In addition, The Theory of Mathematics included some relevant criticism of Euclid’s postulates, specifically the fifth, the parallel postulate, for which, he supposed, he found a proof ( *Geminus*, 2008).

“ The parallel postulate is Euclid’s fifth postulate: equivalent to the idea that there is a unique parallel to any line through a point not on the line.”

(O’Connor & Robertson, 1999)

## References

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## Cultural

- 100 BC Birth of Julius Caesar

Julius Caesar, one of the most influential and famous men in Ancient Rome, was born in July 12 or 13 100 BC in Rome and was killed during the Ides of March in 44 BC. He was a Roman general, a statesman, an orator, a lawgiver, and a historian, who transformed the Roman republic into the powerful Roman Empire ( *Julius Caesar biography* , n. d.). The following are some of his achievements ( *Julius Caesar* , n. d.):

- He never lost in war.
- He was the leader of the invasion of Britain in 55 B. C.
- He improved laws to benefit the people and made laws against the corrupt and unjust.
- He amended the Roman calendar, which is the one in use today
- He cleared up the system of the Roman republic and became the benchmark to future Roman emperors and European leaders

## References

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- 20 BC Virgil: Aeneid

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Publius Vergilius Maro, Vergil or Virgil in English, was born in October 70 BC, near Mantua in northern Italy. Virgil, one of the best Roman poets, is known for his works the Eclogues, the Georgics and the epic Aeneid.

The Aeneid is considered as the Roman's national epic. Virgil started to write the epic that will summarize his ideal Rome when Augustus became the ruler. The story is about Aeneas, a Trojan hero, whose mission is to establish a new Rome. The Aeneid shows the earliest days and destiny of Rome ( *Virgil*, n. d.).

Virgil worked on the Aeneid for the remaining years of his life, but he died because of a fever in 19 B. C., leaving the epic unfinished. He wished for Aeneid to be destroyed, but the current ruler, Augustus ordered for it to be finished and published. The Aeneid appeared in 17 B. C. ( *Virgil* , 2004)

## References

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- 4 BC Birth of Christ

Jesus Christ, also known as Jesus of Nazareth, was born in 4 B. C. He was the founder and center of Christianity, one of the most influential religions in the world. Only a little was known about the childhood of Jesus, but the four biblical gospels Matthew, Mark, Luke, and John provide an account from his birth to his ministry ( *Jesus Christ biography* , n. d.).

## References

Jesus Christ biography. (n. d.). *Bio. com* . Retrieved December 2, 2013, from <http://www.biography.com/people/jesus-christ-9354382>

Jesus of Nazareth. (2004, January 1). *Encyclopedia. com* . Retrieved December 2, 2013, from <http://www.encyclopedia.com/doc/1G2-3404703308.html>

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AD

Mathematical

- AD 50 Negative numbers used in China

Negative numbers are numbers that are less than zero. The concept of negative numbers started in China. Negative numbers were used in Nine Chapters on the Mathematical Art of Jiuzhang Suanchu in solving systems of simultaneous equations. The suan chou (counting rods) method was done with the use of red rods for positive quantities and black rods for negative quantities ( *Negative Number, n. d.* ) . The rules for signed numbers were also given.

The Chinese contribution of negative numbers is very important since it completed the whole numbers and rational numbers.

## References

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- AD 75 Heron: measurements, roots, surveying

Heron of Alexandria, sometimes called Hero, is a Greek Mathematician and Engineer born in 10 A. D. Almost nothing is known about Heron's personal life. Heron's brilliance was shown in his writings in mathematics and mechanics. He wrote at least 13 books in his life covering topics such as geometry and mathematics, surveying, mechanics, pneumatics, automatic machines, war machines, optics and many more (Shuttleworth, n. d.).

Metrica, a series made up of three books, concentrates on calculations of areas and volumes of bodies such as cones, cylinders, pyramids etc. The Hero's formula, which stated the area of a triangle with given sides,  $A = \sqrt{s(s-a)(s-b)(s-c)}$  where  $s = (a+b+c)/2$ , was found in the Book I of Metrica (O'Connor & Robertson, 1999). Heron used arithmetic to solve complicated quadratic equations arithmetically, estimated the square roots of non-square numbers, and calculated cube roots ( *Hero of Alexandria, 2008* ). Mensurae consists of details of the different tools for measuring. Dioptra contains practical and mathematical methods for land surveying ( *Heron of Alexandria, n. d.* ).

## References

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