

The Life of Euclid

All sources on the life of Euclid agree on two points. Firstly, he was the most prominent mathematician of antiquity, best known for his work *The Elements*, which has been read and reread for generations making him the leading mathematics teacher of all time. Secondly, in spite of this, very little is known about his life. He is supposed to have been born around 300 BC. Various sources say that he was born in Tyre or Megara about 325 BC and died in Alexandria about 265 BC, but these sources are not reliable. He is referred to as Euclid of Alexandria. All sources agree that Euclid taught at Ptolemy's university in Alexandria, Egypt. Proclus, the last major Greek philosopher, who lived around 450 AD wrote "...Euclid, who put together the 'Elements', arranging in order many of Eudoxus' theorems, perfecting many of Theaetetus', and also bringing to irrefutable demonstration the things which had been only loosely proved by his predecessors. This man lived in the time of the first Ptolemy; for Archimedes, who followed closely upon the first Ptolemy makes mention of Euclid, and further they say that Ptolemy once asked him if there were a shorter way to study geometry than the Elements, to which he replied that there was no royal road to geometry. ... In his aim he was a Platonist, being in sympathy with this philosophy, whence he made the end of the whole 'Elements' the construction of the so-called Platonic figures."

The Elements are divided into 13 books. The first 6 are on geometry; 7, 8 and 9 are on number theory; and book number 10 is on Eudoxus' theory of irrational numbers. Books 11, 12, and 13 all concern solid geometry, and end with a discussion of the properties of the five regular polyhedrons and proof that there can only be these five. Euclid's *Elements* are remarkable for the clarity with which the theorems and problems are selected and ordered. The propositions proceed logically and concisely, with very few assumptions. However, Euclid is not known to have made any original discoveries, and *The Elements* is based on the work of the people before him, like Eudoxus, Thales, Hippocrates, and Pythagoras. It is accepted that some of the proofs are his and that the excellent arrangement is his. Over a thousand editions of the work have been published since the first printed version of 1482. Euclid's other works include *Data*, *On Divisions of Figures*, *Phaenomena*, *Optics*, *Surface Loci*, *Porisms*, *Conics*, *Book of Fallacies*, and *Elements of Music*. Only the first four of these have survived.

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