

The background of the entire page is a reproduction of Raphael's fresco 'The School of Athens'. It depicts a group of ancient Greek philosophers in a grand, vaulted hall. Plato is shown pointing upwards, while Aristotle gestures towards the earth. Other figures like Socrates, Pythagoras, and Euclid are engaged in various intellectual activities. The architecture features large arches and classical columns.

# RAPHAEL'S *SCHOOL OF ATHENS*

1509 - 1511



01	EUCLID
02	PTOLEMY
03	PYTHAGORAS
04	DIOGENES
05	XENPHON
06	NICOMACHUS
07	STRABO
08	ARCHIMEDES
09	HERACLITUS
10	ZENO OF CITIUM



# EUCLID

- 285 BC

Set of 13 books titled 'Elements'. These are a series of statements & proofs arranged into a formal system.

Known as plane Geometry these rules apply to Planar space.

## 5 AXIOMS (FOUNDATION)

01



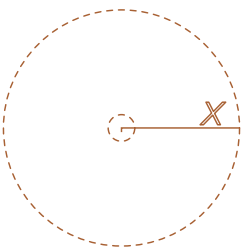
"IT IS POSSIBLE TO JOIN A STRAIGHT LINE FROM ONE POINT TO ANY OTHER POINT"

02



"IT IS POSSIBLE TO EXTEND A STRAIGHT LINE IN ANY DIRECTION INFINITELY"

03



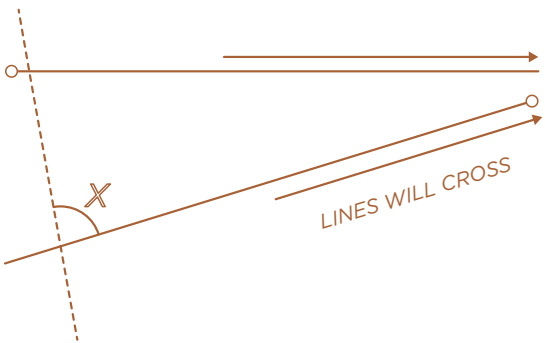
"IT IS POSSIBLE TO DRAW A CIRCLE WITH A CENTRE POINT & ANY RADIUS"

04



"ALL RIGHT ANGLES ARE EQUAL OR CONGRUENT"

05



"SUM OF THE INTERIOR ANGLE IS LESS THAN 90 (X)"

# PTOLEMY

100 AD - 160 AD

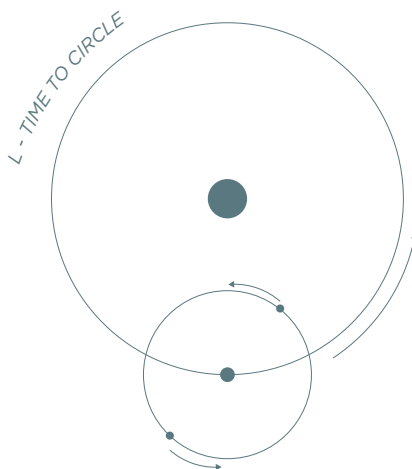
Earth-centered, or Geocentric. Ptolemy thought that all celestial Objects including the Planets, Sun, Moon, and stars orbited Earth. Earth, in the centre of the Universe, did not move at all.

01



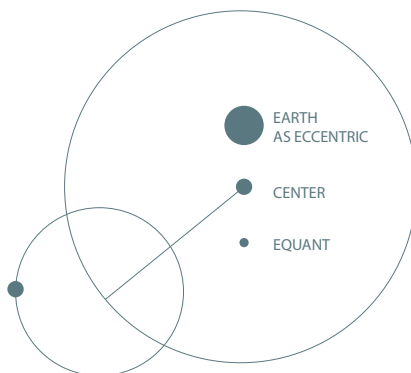
"A representation of Ptolemy from the Blaeu Atlas Maior (1662)"

02



"EARTH IS CENTRAL TO THE UNIVERSE"

03



# PYTHAGORAS

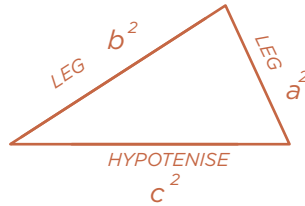
570BC - 495BC

Lived on the Greek isle of Samos. Taught by Thales. Founded Pythagoras School, Cambridge

Mathematics  
Music Theory  
Astronomy  
Philosophy  
Religion

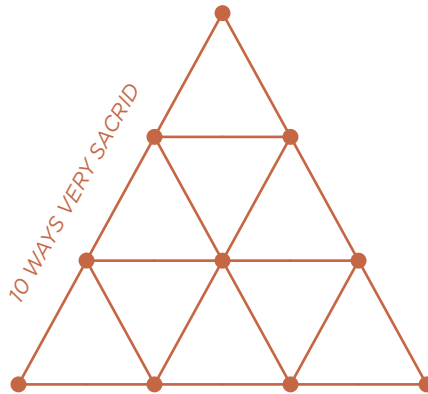
## PYTHAGOREAN THEOREM

01



*"In Mathematics, the Pythagorean Theorem, also known as Pythagoras Theorem is a fundamental relation in Euclidean Geometry among the three sides of a triangle . It states that the square of the hypotenuse is equal to the sum of the squares of the other two side's."*

02



*"10 INTERSECTING POINTS MAKE UP A SMALLER TRIANGLE"*

*"Hippasus is sometimes credited with the discovery of the existence of irrational numbers. Pythagorean preached that all numbers could be expressed as the ratio of integers and the discovery of irrational numbers is said to have shocked them"*

*"The tetracyclic, or tetrad, or the tetractys of the decad is a triangular figure consisting of ten points arranged in four rows: one, two, three, and four points in each row, which is the geometrical representation of the fourth triangular number."*

03



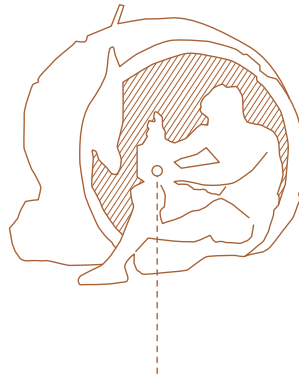
*"THE STARS AND THE HEAVENS SING A MUSIC IF ONLY WE HAD EARS TO HEAR "*

# DIOGENES

404 BC - 323 BC

A Greek Philosopher and one of the founders of Cynic Philosophy. He was born in Si-nope, an Ionian colony on the Black Sea. Diogenes was a controversial figure. His father minted coins for a living, and Diogenes was banished from Sinope when he took to Debasement of Currency. After being exiled, he moved to Athens and criticized many cultural conventions of the city. move at all.

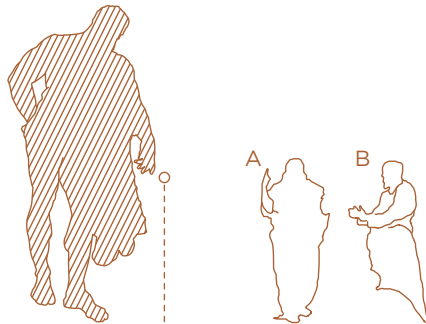
01



"FOUND BEGGING IN A CERAMIC JAR "

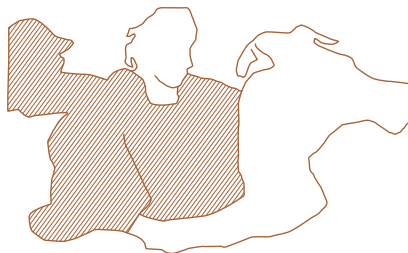
Containers used among the civilisations that bordered the Mediterranean Sea in the Neolithic, the Bronze Age and the succeeding Iron Age. Pithoi had been used for bulk storage, primarily for fluids and grains; they were comparable to the drums, barrels and casks of recent times"

02



"HE MODELLED HIMSELF ON THE EXAMPLE OF CORACLES, AND BELIEVED THAT VIRTUE WAS BETTER REVEALED IN ACTION THAN IN THEORY"

03



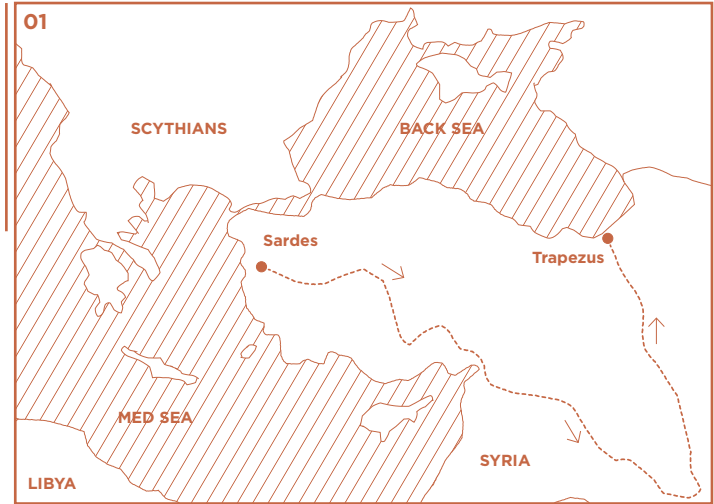
He criticized Plato (A), disputed his interpretation of Socrates (B), and sabotaged his lectures, sometimes distracting attendees by bringing food and eating during the discussions"

# XENOPHON

430 BC - 354 BC

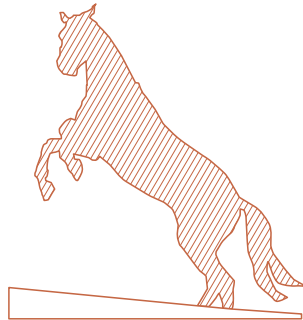
Greek Historian,  
Soldier & Mercenary

Student of Socrates.  
Born in Athens.



"In 401 BC he was convinced by his Boeotian friend Pyroxenes to participate in the military expedition led by Cyrus the Younger against his elder brother, King Artaxerxes II of Persia.

01



"A horse is a thing of beauty... None will tire of looking at him as long as he displays himself in his splendour."

03



"Excess of grief for the dead is madness; for it is an injury to the living, and the dead know it not."



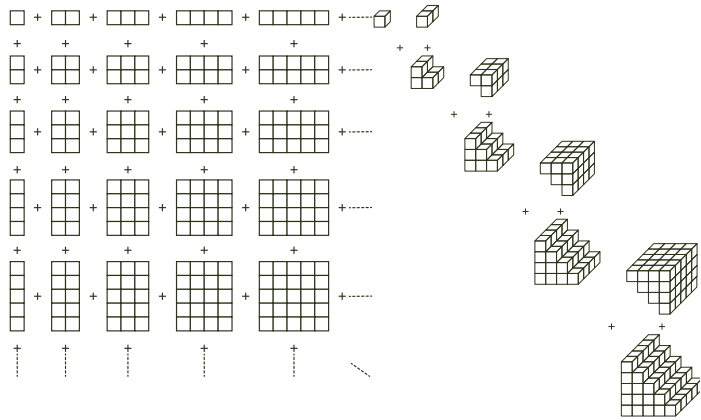
# NICOMACHUS

60 AD - 100AD

Mathematician best known for Arithmetic and harmonics. He was born in Gerasa, in the Roman province of Syria (now Jerash, Jordan), and was strongly influenced by Aristotle. He was a Pythagorean, who wrote about the mystical properties of numbers.

## THEOREM

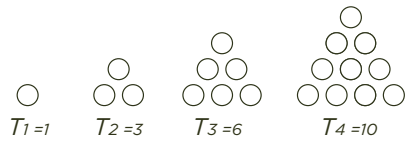
01



A square whose side length is a triangular number can be partitioned into squares and half-squares whose areas add to cubes.

$$1^3 + 2^3 + 3^3 + \dots + n^3 = (1+2+3+\dots+n)^2$$

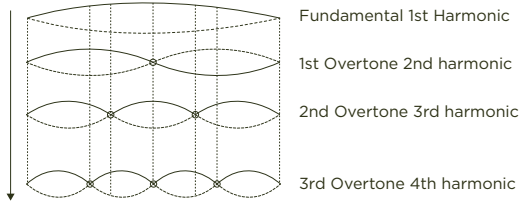
02



The first six triangular numbers

A triangular number or triangle number counts objects arranged in an equilateral Triangle, as in the diagram above. The nth triangular number is the number of dots in the triangular arrangement with n dots on a side, and is equal to the sum of the n natural numbers from 1 to n. In number theory, the sum of the first n cubes is the square of the nth triangular number.

03



In ancient Greek thought, the musical scale discovered by the philosopher Pythagoras was seen as a utopian model of the harmonic order behind the structure of the cosmos and human existence. Through proportion and harmony, the musical scale bridges the gap between two extremes. It encapsulates the most fundamental pattern of harmonic symmetry and demonstrates how the phenomena of nature are inseparably related to one another through the principle of reciprocity. Because of these relationships embodied in its structure, the musical scale was seen as an ideal metaphor of human society by Plato and other Pythagorean thinkers, for it is based on the cosmic principles of harmony, reciprocity, and proportion, whereby each part of the whole receives its just and proper share.

# STRABO

63 BC - 23 AD

Strabo was a Greek Geographer, Philosopher, and Historian who Lived in Asia Minor During the transitional Period of the Roman Republic into the Roman Empire

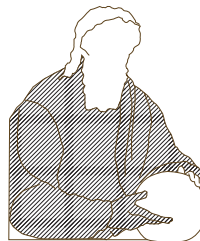
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Statue of Strabo in his hometown (modern-day Amasya, Turkey), beside the Iris River

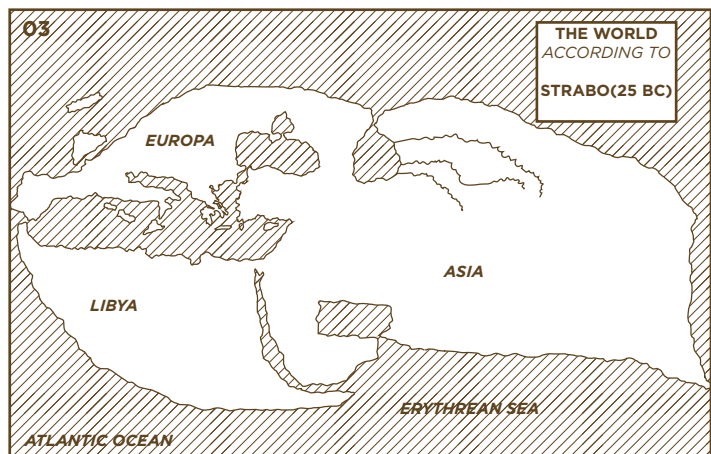
Strabo who wrote his famous Geographia at The beginning of the Christian era and compiled his map from Travellers' reports and the "writings" of ancients. The now lost Map by Strabo represented the sum total of cartographic Knowledge before the Christian era.

02



The contribution of Strabo as a scholar of great stature as philosopher, historian, And geographer, epitomizes the continuing importance of the Greek intellectual heritage - And contemporary practice - to the development of cartography in the early Roman World. As the reviser of Eratosthenes (#112), he also illustrates the continuous way later Generations had built on the cartographic concepts first clearly set out in the Helle

03

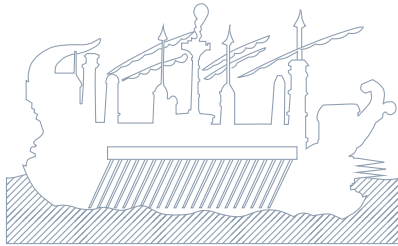


## ARCHIMEDES

01

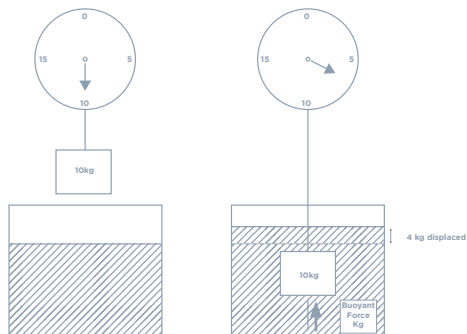
287BC - 212 BC

Archimedes of Syracuse. He was a Greek Mathematician, physicist, engineer, inventor, and astronomer. Although few details of his life are known, he is regarded as one of the Leading scientists in Antiquity. He proved geometrical Theorems, including the area of a circle, the surface area and volume of a sphere, and the area under a parabola.



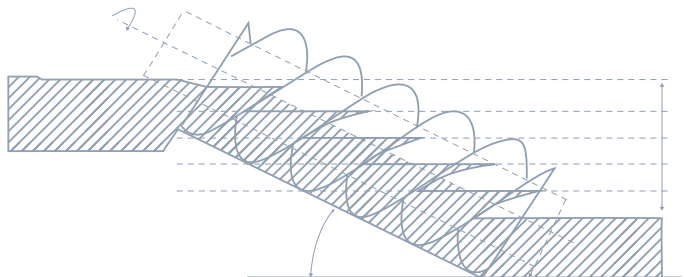
Syracusia was designed by Archimedes and built around 240 BC by Archias of Corinth on the orders of Heron II of Syracuse. Syracusia was a 110 m ancient Greek ship sometimes claimed to be the largest transport ship of antiquity. She was reportedly too big for any port in Sicily, and thus only sailed once from Syracuse in Sicily to Alexandria in the Ptolemaic Kingdom of Egypt, whereupon she was given as a present to Ptolemy II

02



Archimedes' principle states that the upward buoyant force that is exerted on a body immersed in a fluid, whether fully or partially submerged, is equal to the weight of the fluid that the body displaces and acts in the upward direction at the centre of mass of the displaced fluid.

03



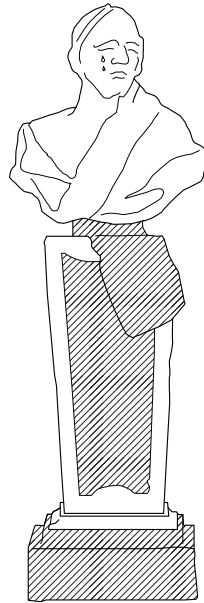
The Archimedes screw consists of a screw (a helical surface surrounding a central cylindrical shaft) inside a hollow pipe. The screw is usually turned by windmill, manual labour, cattle, or by modern means, such as a motor. As the shaft turns the bottom end scoops up a volume of water. This water is then pushed up the tube by the rotating helicon until it pours out from the top of the tube.

# HERACLITUS

01

535 BC - 475BC

Heraclitus was a pre-Socratic Greek philosopher, and a native of the city of Ephesus, then part of the Persian Empire. The nature of his philosophy and his stress upon the needless unconsciousness of humankind affirmed his titles as: "The Obscure" and the "Weeping Philosopher".



Bust of Heraclitus, "The Weeping Philosopher" by Johann Christoph Ludwig Lücke ca. 1757

Heraclitus was famous for his insistence on ever-present change as being the Fundamental essence of the universe, as stated in the famous saying, **"No man ever steps in the same river twice"** This is commonly considered to be one of the first digressions into the philosophical concept of becoming, and has been contrasted with Parmenides statement that "what is-is" as one of the first Digressions into the philosophical concept of being.



**The transformation is a replacement of one element by another: "The death of fire is the birth of air, and the death of air is the birth of water."**

Heraclitus considered fire as the most fundamental element. He believed fire gave rise to the other elements and thus to all things. He regarded the soul as being a mixture of fire and water, with fire being the noble part of the soul, and water the ignoble part.

## ZENO OF CITIUM

334BC - 262 BC

Zeno was the founder of the Stoic school of philosophy, which he taught in Athens from about 300 BC. Based on the moral ideas of the Cynics, Stoicism laid great emphasis on goodness and peace of mind gained from living a life of Virtue in accordance with Nature. It proved very popular, and flourished as one of the major schools of philosophy from the

01



Zeno, portrayed as a medieval scholar in the Nuremberg Chronicle

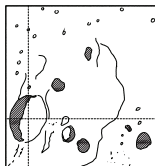
Following the ideas of the Academics, Zeno divided philosophy into three parts: Logic (a very wide subject including rhetoric, grammar, and the theories of perception and thought); Physics (not just science, but the divine nature of the universe as well); and Ethics, the end goal of which was to achieve happiness through the right way of living according to Nature.

02



During his lifetime, Zeno received appreciation for his philosophical and pedagogical teachings. Among other things, Zeno was honored with the golden crown and a tomb was built in honor of his moral influence on the youth of his era.

03



A crater Zeno on the Moon is named in his honour.





