

Archimedes was taking a bath, trying to find a way to prove whether the crown of the king of Syracuse was made of gold or not, when he came up with his principle...



An object, wholly or partially immersed in a stationary fluid, is buoyed up by a force equal to the weight of the fluid displaced by the object.



Equal weights at equal distances from the pivot balance. Equal weights at unequal distance from the pivot do not balance, but the weight at the greater distance will tilt the end of the lever down.



- In shipbuilding, it is taken into consideration to a great extent.
- A lot of applications of it appears in the construction of submarines and floating tanks because of the changeable buoyancy rates.

Biographical Sketch

Archimedes was an ancient Greek physicist, mathematician, mechanic, inventor and astronomer. He was born in approx. 287 A.D. in the part of Syracuse, in Sicily. It is unknown whether he was married or had any children. He studied in the Alexandria of Egypt. He died in approx. 212 A.D. during a war.

The claw of Archimedes

A weapon, used for the defense of Syracuse, was lifting the ships out of the water and sinking them.



The steam cannon of Archimedes

It was launching metal spheres with the use of water and it consisted of a metal cylindrical boiler and a closed container full of water.



Archimedes' screw

Used for raising the water and moving it from a lower place to a higher one, this device was a revolving screw-shaped blade inside a cylinder.



The pulleys of Archimedes

It was consisted of connected ascending screws and toothed wheels inside a box and it was used for the lifting or attraction of heavy cargo with small amount of force.



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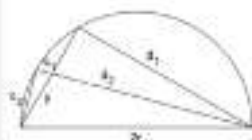
Archimedes



ERASMUS KA2: "INVENTORS AND INNOVATORS: OUR HERITAGE, OUR FUTURE"

On the sphere and the cylinder

The surface area and the volume area of a sphere is 2/3 of the cylinder that surrounds the sphere.



$$\sum_{n=0}^{\infty} 4^{-n} = 1 + 4^{-1} + 4^{-2} + 4^{-3} + \dots = \frac{4}{3}$$

Pythagorean theorem Archimedes managed to calculate the side of the 12-gon from the side of an 6-gon.

The method of exhaustion He calculated the rate of Pi (mentioned in the Measurement of a sphere), which is between the 31/7 and the 310/70.



The Quadrature of the Parabola The region enclosed by a parabola and a straight line is 4/3 that of a certain inscribed triangle.



Proof by Contradiction Archimedes gave accurate answers to mathematical problems using that method.

The Sand Reckoner He calculated the amount of the grains of sand that fit into the universe. He also invented a system of measurement with "μυριάδα" (miriada) as a unit.



The Orrery of Archimedes It was made with glass spheres, placed the one into the others and being able to move with the help of water. This astronomical device showed the positions of the five planets that were known until then. It is said that Archimedes had managed to calculate with great accuracy the distances between those planets. In fact, he was representing the first planetary system.

Archimedes believed that the universe was bigger than it has been said since then and that Earth wasn't still, but it was moving in orbit around the sun. In addition, he believed that Earth was much bigger than it really was.

Archimedes had constructed a hydraulic clock, for the measurement of time, with which he could calculate with great accuracy the hours and it could also alert us for the hour shift. This clock was 4 meters high.

