World Biography (../in…   /   An-Ba (index.html)   /   Archimedes Biogr…

Archimedes Biography

Born: c. 287 B.C.E.
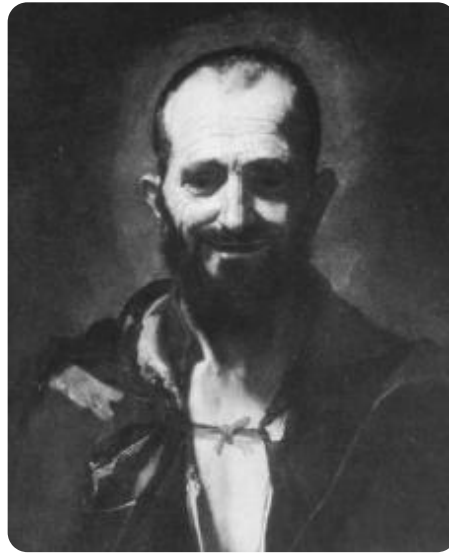**Syracuse**
Died: 212 B.C.E.
Syracuse
Greek mathematician

Archimedes is considered one of the greatest mathematicians of all time. He is also famed for his inventions and for the colorful—though unproven—ways he is believed to have made them.

(*Early life*

Little is known about Archimedes's life. He probably was born in the seaport city of Syracuse, a Greek settlement on the island of Sicily in the Mediterranean Sea. He was the son of an astronomer (someone who studies outer space, such as the stars) named Phidias. He may also have been related to Hieron, King of Syracuse, and his son Gelon. Archimedes studied in the learning capital of Alexandria, Egypt, at the school that had been established by the Greek mathematician Euclid (third century B.C.E.). He later returned to live in his native city of Syracuse.

There are many stories about how Archimedes made his discoveries. A famous one tells how he uncovered an attempt to cheat King Hieron. The king ordered a golden crown and gave the crown's maker the exact amount of gold needed. The maker delivered a crown of the required weight, but Hieron suspected that some silver had been used instead of gold. He asked Archimedes to think about the matter. One day Archimedes was considering it while he was getting into a bathtub. He noticed that the amount of water overflowing the tub was proportional (related consistently) to the amount of his body that was being immersed (covered by water). This gave him an idea for solving the problem of the crown. He was so thrilled that he ran naked through the streets shouting, "Eureka!" (Greek for "I have discovered it!").

Archimedes.
Courtesy of the
Library of Congress
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There are several ways Archimedes may have determined the amount of silver in the crown. One likely method relies on an idea that is now called Archimedes's principle. It states that a body immersed in a fluid is buoyed up (pushed up) by a force that is equal to the weight of fluid that is displaced (pushed out of place) by the body. Using this method, he would have first taken two equal weights of gold and silver and compared their weights when immersed in water. Next he would have compared the weight of the crown and an equal weight of pure silver in water in the same way. The difference between these two comparisons would indicate that the crown was not pure gold.

Archimedes also studied aspects of the lever and pulley. A lever is a kind of basic machine in which a bar is used to raise or move a weight, while a pulley uses a wheel and a rope or chain to lift loads. Such mechanical investigations would help Archimedes assist in defending Syracuse when it came under attack.

(Wartime and other inventions

According to the Greek biographer Plutarch (c. C.E. 46–c. C.E. 120), Archimedes's military inventions helped defend his home city when it was attacked by Roman forces. Plutarch wrote that after Hieron died, the Roman general Marcus Claudius Marcellus (c. 268 B.C.E. –208 B.C.E.) attacked Syracuse by both land and sea. According to Plutarch Archimedes's catapults (machines that could hurl objects such as heavy stones) forced back the Roman forces on land. Later writers claimed that Archimedes also set the Roman ships on fire by focusing an arrangement of mirrors on them. Nevertheless, despite Archimedes's efforts, Syracuse eventually surrendered to the Romans. Archimedes was killed after the city was taken, although it is not known exactly how this occurred.

Perhaps while in Egypt, Archimedes invented the water screw, a machine for raising water to bring it to fields. Another invention was a miniature planetarium, a sphere whose motion imitated that of the earth, sun, moon, and the five planets that were then known to exist.

(Contributions to mathematics

Euclid's book *Elements* had included practically all the results of Greek geometry up to Archimedes's time. But Archimedes continued Euclid's work more than anyone before him. One way he did this was to extend what is known as the "method of exhaustion." This method is used to determine the areas and volumes of figures with curved lines and surfaces, such as circles, spheres, pyramids, and cones. Archimedes's investigation of the method of exhaustion helped lead to the current form of mathematics called integral calculus. Although his method is now outdated, the advances that finally outdated it did not occur until about two thousand years after Archimedes lived.

Archimedes also came closer than anyone had before him to determining the value of pi, or the number that gives the ratio (relation) of a circle's circumference (its boundary line) to its diameter (the length of a line passing through its center). In addition, in his work *The Sand Reckoner,* he created a new way to show very large numbers. Before this, numbers had been represented by letters of the alphabet, a method that had been very limited.

(*For More Information*

Bendick, Jeanne, and Laura M. Berquist. *Archimedes and the Door to Science.* Minot, ND: Bethlehem Books, 1997.

Ibsen, D. C. *Archimedes: Greatest Scientist of the Ancient World.* Springfield, NJ: Enslow Publishers, 1989.

Also read article about Archimedes (/knowledge/Archimedes.html) from Wikipedia

(User Contributions:

1
(/An-
Mattjosh637 (mailto:Mattjosh637 [at] gmail [dot] com)   Aug 13, 2012 @ 12:12 pm 🚫

Did archemedis got any kids and quotes?.i am glad to have some knowledge about archemedis ,he was a very brave man who tried to protect his hometown and still he was kiled.i would love to know how he died?

2
(/An-
Keller   Aug 17, 2012 @ 11:11 am 🚫

It is not known whether Archimedes married or not, but he was murdered by a Roman soldier after asking to be able to finish a problem he was working on, even though the Roman commander Marcellus had given strict orders that no one should kill the great thinker.

3
(/An-
Poppy   Jun 9, 2014 @ 5:05 am 🚫

Well actually, no one knows exactly how Archimedes died. But it is definite that he was killed after Syracuse was taken by the Romans. One version is the one already listed. But another is that Archimedes was carrying several mathematical instruments to Marcello, but his soldiers mistook them for gold, and so he was murdered.

4

Grant   Nov 2, 2015 @ 7:19 pm 🚫

One version on how Archimedes died is that a citizen held a grudge against Archimedes and murdered him. Once Marcus Claudius Marcellus discovered this he killed the soldier.

5

Ariana Grande   May 29, 2019 @ 10:10 am 🚫

There are many stories about how Archimedes made his discoveries. A famous one tells how he uncovered an attempt to cheat King Hieron. The king ordered a golden crown and gave the crown's maker the exact amount of gold needed. The maker delivered a crown of the required weight, but Hieron suspected that some silver had been used instead of gold. He asked Archimedes to think about the matter. One day Archimedes was considering it while he was getting into a bathtub. He noticed that the amount of water overflowing the tub was proportional (related consistently) to the amount of his body that was being immersed (covered by water). This gave him an idea for solving the problem of the crown. He was so thrilled that he ran naked through the streets shouting, "Eureka!" (Greek for "I have discovered it!").

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do=finduser&u=2173187) or Twitter (https://twitter.com/LechMazur/)

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And for the record, I'm against unjustified zoning restrictions that increase housing costs in cities. Then you get people asking for rent control, which makes matters worse.

♡ ⤷   26m

Lech Mazur
@LechMazur

Doesn't Coronavirus put into question the widely held assumption that dense, walkable cities are better than the suburbs? I think it's fine to acknowledge that

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