

Archimedes (287 BC - 212 BC)

Once upon a time long, long, long ago in Syracuse, Greece, lived a very intelligent man named Archimedes. Archimedes loved to think and solve challenging problems.

When Archimedes was still young, the king of Syracuse, King Hieron, asked for his help. King Hieron had built an impressive ship so big he couldn't move it into the water. The king knew Archimedes loved brain-teasers, so he thought this smart man could find him a solution. Archimedes went to work, and with the help of some young boys who worked for him, he placed a collection of pulleys, levers and ropes around the base of the ship. Then he sat in a low chair on the beach. Large crowds waited to see if he would succeed. At the signal from the king, he gently tugged on the rope attached to the first pulley. Smoothly, and almost effortlessly, the ship began to move towards the sea. Everyone cheered, some scratched their heads in bewilderment.



Some time after King Hieron said –“Archimedes, I have another problem for you.”

–“Yes, your Majesty. How can I help?”

–“I have had a new crown crafted by Dionthenes. It's here, wrapped in this velvet cloth.”

–“It's magnificent, your Highness. Arent' you happy with it?”

–“I'm pleased with the way it looks, but something tells me it's not quite what I ordered,” the king explained. “You see, I took the required amount of gold to Dionthenes and asked him to craft this crown. But

now I wonder if the goldsmith used silver to put inside the crown, and kept some of the gold for himself.”

–“Hmmm.” Archimedes was stumped. “Naturally, you wouldn’t want to cut into such a beautiful crown. I suppose you’ve checked it to see that it weights the same as the gold you gave Dionthenes”?

–“Yes” said the king, “I did and it weighs the same”.

Archimedes left promising the king he would find out if the crown was pure gold or mixed with silver. While Archimedes was bathing in the public bath house (there were no private bathrooms then), he suddenly jumped up shouting “Eureka, eureka!” (“I found it!”), running down the streets with his rear end completely naked. In the bath, he noticed the water level rose and fell as he lowered and lifted himself, and that the water buoyed him up more when his body was completely submerged. Archimedes knew the crown weighted the same as the gold the king gave the goldsmith, but if the crown displaced more water than the gold, that meant its volume must be greater, so it must be filled with something less dense than gold, like silver. Indeed, that’s exactly what happened. Archimedes had solved the king’s puzzle without cutting the crown open.

Later, when the Romans wanted to conquer Syracuse, Archimedes defended it. Archimedes built huge catapults that threw heavy stones over the city walls onto Roman ships. He designed massive cranes that picked up ships and dumped all the sailors into the sea. He used large “burning-glasses”, like gigantic magnifying glasses, which focused light onto the ships until they got so hot they burst into flames. For 3 years, the Romans couldn’t defeat Archimedes’ ingenious defense. The Roman commander, Marcellus, was angry at being defeated by a mathematician. However, he understood and respected his brilliance and creativity.

Today, Archimedes is considered among the greatest three mathematicians who ever lived.

Source: Mathematicians Are People Too: Stories from the Lives of Great Mathematicians, by Luetta Reimer and Wilbert Reimer