

## [Episode 6 - Hypatia Transcript]

Around the year 370 Current Era, the Greek mathematician and philosopher, Hypatia, was born to Theon of Alexandria. It's unclear when she was actually born, but some people have placed her birth around 20 years earlier to allow Hypatia more time to develop an intellectual presence. She would have been born around 350 Current Era, rather than 370. Her father, Theon, was also another Greek philosopher and mathematician. His association with the Museum of Alexandria allowed Hypatia the best education possible for that time period. She was believed to have studied under her father and helped him with his editing of Euclid's Elements. None of her own works survived, however, so we have no way of knowing if she worked as an original mathematician.

Hypatia is well known for her work on conic sections established by Apollonius as she edited his work on the conics. Together they introduced a thought of dividing a cone into different parts by a plane thus creating conic sections. By the time of Hypatia and Theon, the golden period of knowledge was ending. The Alexandrian Library had been burned down and the only other library was ransacked by a Christian mob. Hypatia's life ended 45 years later in March of the year 415. Multiple theories say that Hypatia ensured the survival of six of thirteen books in Diophantus' *Arithmetica*. This allowed improvement of algebraic notation and the application of variables in place of lengthy sentences that mathematicians had used before.

In her classes, Hypatia did not accept zeros, negatives, or irrational values as solutions. For example, when using the quadratic formula to find the zeroes of a quadratic function, only the positive square root was taken into account. Also, when subtracting in Hypatia's classroom, the subtrahend was always smaller than the minuend so that the sum always turned out positive.

Later in life, she became the head of the Platonist school of Alexandria teaching Neoplatonism. The ideas around Neoplatonism say that there is an ultimate reality that the human mind cannot conceive, let alone understand the consequences of. Along with this plane of existence that which the ultimate purpose of life revolves towards, there are subsequent lower levels of existence which our minds are able to comprehend. Hypatia was able to teach Neoplatonism with a greater emphasis on science and math, something her predecessors had not done. This caused Hypatia to be seen as an image of science and learning. Many of her students idolized her for that, as we can see through letters from Synesius from Cyrene to Hypatia idolizing her abilities in scientific teaching. Synesius of Cyrene later became the bishop of Thalamus, now Libya.

Hypatia was so widely respected for her prowess in teaching Neoplatonism it eventually became her downfall. She has perhaps drawn the most attention to her through her violent death. At the time period, there was a fight for control between church and state. In 412, Cyril, who later became Saint Cyril, became the patriarch of Alexandria, and during this time, Orestes, the prefect of Alexandria, was a friend of Hypatia. Because science did not coincide with the basis Christianity was making, it symbolized Paganism. Neoplatonism embodied sin even more so. Even with many Christian students, Synesius being a prominent example, Hypatia quickly became a symbol of Paganism, and she was considered a threat to the church. Coptic bishop, John of Nikiû, has stated that she was devoted at all times to magic, astrolabes, and instruments of music, and she beguiled many people through her satanic wiles. As a feud between Orestes and Cyril intensified, Hypatia held her ground on her principles and paid the ultimate price for it. She received a martyr's death when the fanatical Christian sect called the Parabalani that was following Saint Cyril drug her into a church and beat her to death with ceiling tiles, thus ending Hypatia's reign of intellect.