René Descartes

LIFE AND CONTRIBUTIONS TO MATHEMATHICS

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Overview on Descartes' Life

- René Descartes was born in 31 March 1596 in France and he died in 11 February 1650 (at age 53) in Sweden.

- His mother died when he was only one year old, so he mostly lived with his grandmother through his childhood.

- He entered the Royal College, where he was introduced to mathematics and physics.

- He studied law at University of Poitiers.

- Two years after his graduation (1618) he decided to become a military officer and joined Dutch States Army.

- He said "I think, therefore I am".

- He lived in Netherlands until 1649 and published many of his works on mathematics and philosophy.

- In 1649 he moved to Stockholm, Sweden where he died from pneumonia.

▶ Descartes on 100 Francs Banknote, 1942
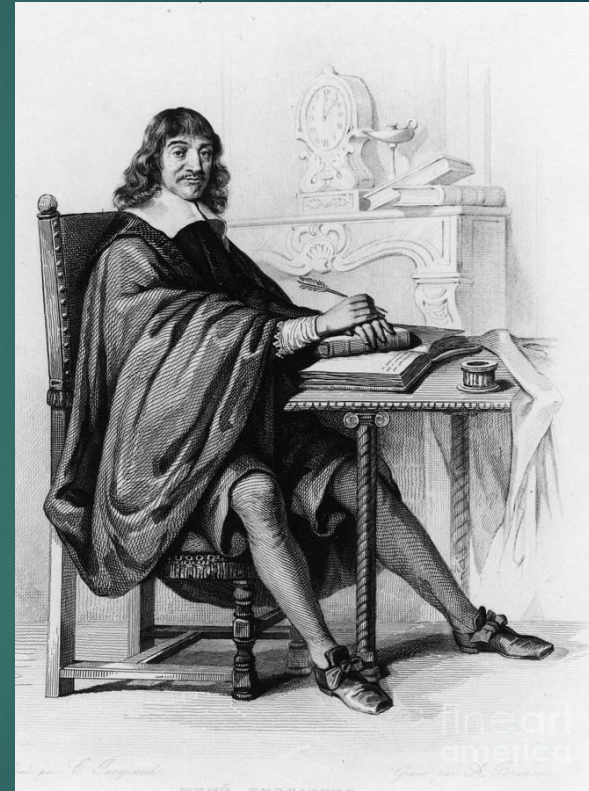
▶ Portrait of Descartes, 1648

Academic Life

► While serving in Dutch military, he studied military engineering and gained further knowledge in mathematics. He also met Isaac Beekman, a Dutch scientist, and they worked together on mechanical and mathematical problems. This has woken in him a further interest for achieving true wisdom and science.

► In 10-11 November 1619, while his regiment was stationed in Neuburg, Germany, Descartes shut himself in a room with an "oven" in order to warm up. That night he had "visions" about analytical geometry and philosophy (skepticism).

► After he left military, he studied mathematics in University of Franeker and Leiden University.

His Works

- He did not publish some of his older works on movement of the Earth after Galileo was condemned by the Church for his ideas.

- In the years he spent in the Netherlands he wrote about mathematics and philosophy. In 1637 he published his essays, together with "Discourse on the Method", which is the foundation of rationalism. This book gave Descartes a big reputation among scientists and philosophers.

- After the publishing of his book, Descartes was branded as a heretic by some religious groups for his skeptic ideology.

- He continued to publish his works on mathematics and philosophy for the rest of his life.

- After his death, some of this books were prohibited by the Pope.

List of Works by Descartes

- Discourse on the Method (1637)
- Geometry (1637)
- Meditations on First Philosophy (1641)
- Principles of Philosophy (1644)
- The Passions of the Soul (1649)
- Rules for the Direction of the Mind (1684)
- The Search for Truth (1701)

Impact on Mathematics

- Descartes is the founder of Cartesian/Analytic Geometry. This was a huge breakthrough at the time as previously algebra and geometry were seen as relatively unconnected fields. Numbers with powers higher than three were considered meaningless.

- Descartes also contributed to the formulation of Cartesian product operation. Visualization of Cartesian coordinates also played a part in the development of infinitesimal calculus.

- Descartes invented the convention of representing unknowns by x, y, z and known values with a, b, c. He was also one of the first to use superscripts (as in x^y) to write exponentials.

- Word "Cartesian" comes from latinized version of Descartes' name, which is Renatus Cartesius.

Sources

- https://en.wikipedia.org/wiki/Ren%C3%A9_Descartes

- http://www.storyofmathematics.com/17th_descartes.html

- http://plato.stanford.edu/entries/descartes-mathematics/

- https://edukalife.blogspot.com.tr/2015/06/biography-of-rene-descartes.html

- http://www-personal.umich.edu/~jbourj/money5.htm

Bonus - Recommended Reading

- http://factmyth.com/factoids/rene-descartes-slept-in-an-oven/