

Jean Baptiste Joseph Fourier
French Mathematician, Born: Auxerre, Yonne, Mar 21, 1768.
Died: Paris, May 16, 1830

Fourier, an orphan at eight, was headed for the priesthood. He, however, wanted to be in the army. During the French Revolution he wanted to become an artillery officer, and after the revolution he graduated from military school and was offered a job, which he took, as a professor in the military school.

His career shadowed Napoleon's and he went to Egypt with Napoleon in 1798. Fourier's expedition team discovered the Rosetta stone in July 1799. In 1808, after his first mathematical discoveries, he was made a baron by Napoleon. He survived Napoleon's downfall and under the Bourbons he became joint secretary of the Academy of Sciences in 1822.

After returning from Egypt in 1801, Fourier delved into the sciences. Fourier was studying heat flow in substances and he developed Fourier's Theorem: any periodic oscillation can be broken up into a series of regular wave motions, where each term of the series is made up of trigonometric functions. Using this and other works, Fourier published, in 1822, his book, *Analytic Theory of Heat*. Fourier's work can be used in any area that has a wave phenomena such as heat, light, sound, etc. The mathematical expressions of such phenomena is called harmonic analysis. Fourier's book was adjudicated for publication and was accepted by all on the committee except Lagrange. Lagrange withheld his approval because he objected to Fourier's expansion of functions by the trigonometric series now known as the Fourier Series. This series is what Fourier is best remembered for.

Fourier believed heat to be essential to health, and always kept his home well heated and wore lots of layers of clothes. He died after a fall down the stairs. (Isaac Asimov's *Biographical Encyclopedia of Science and Technology*) However, another source, *God Created the Integers*, by Stephen Hawking, says that Fourier suffered from rheumatism and died of nervous angina and heart problems.

Lord Kelvin stated this about Fourier and his work:

“Fourier's Theorem is not only one of the most beautiful results of modern analysis, but it is said to furnish an indispensable instrument in the treatment of nearly every recondite question in modern physics... Fourier is a mathematical poem.”