Jean Baptiste Joseph Fourier Biography

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Biography

Jean-Baptiste-Joseph Fourier was a French mathematician and physicist. Fourier was active in the French Revolution and later worked for Napoleon and the French government as an administrator and Egyptologist. Best known for his contribution to the mathematical analysis of **heat** flow, Fourier laid the groundwork for later efforts on trigonometric series and the theory of functions of a real variable.

Born in Auxerre, France, Fourier was the son of a tailor. At a young age he showed great promise in various areas of study, including Latin and literature. He was drawn towards mathematics and had completed a comprehensive study of Bezout's *Cours de Mathematique* by the time he was 14 years of age. Although he briefly studied for the priesthood in a Benedictine abbey, Fourier continued his interest in mathematics and decided to leave the monastery. Fourier went on to teach at the College de France and the École Polytechnique. Fourier then joined Napoleon on his invasion of Egypt in 1798 as a scientific adviser. Upon his return to France in 1801, Napoleon appointed Fourier prefect of the Department of Is(re in Grenoble, where he spent much time working on his *Description of Egypt* and on the mathematics for his theory of heat.

In his 1807 memoir, *On the Propagation of Heat in Solid Bodies*, Fourier laid the groundwork for his mathematical theory of heat, which was culminated with the 1822 publication of *Analytical Theory of Heat*. In his theory, Fourier describes the partial differential equation governing heat diffusion and its solution by using infinite series of trigonometric functions. The method of mathematical analysis is now known as the Fourier series. Although other mathematicians had used the series before Fourier, he investigated them in much greater detail. He was initially criticized for his work's lack of vigor but later was proven correct. Through Fourier's work, it became accepted that nearly any function of a real variable can be represented by a series involving the sines and cosines of integral multiples of variables.

Fourier's work in mathematics represented a high point in the history of pure and applied mathematics in the eighteenth century. Fourier, who was elected to the French Academy of Sciences, died at the age of 62.