Abraham Demoivre Biography

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Biography

The French mathematician Abraham Demoivre (1667-1754) was a successful exponent of the calculus of Newton and Leibniz and an early writer on the mathematics of life insurance.

Abraham Demoivre, the son of a surgeon living at Vitry, Champagne, was born May 26, 1667. He was given a Protestant schooling and at the age of 11 went to the Protestant University of Sedan. He studied logic at Saumur, and at the Collège d'Harcourt in Paris he learned the physics of the day, mainly according to the system of René Descartes. When Demoivre was 18, Louis XIV revoked the Edict of Nantes, which had granted toleration to Protestants, and the youth was forced to flee Paris, eventually settling in London.

Once in London, Demoivre earned a meager living as a private teacher and lecturer in mathematics and natural science. He obtained a copy of Isaac Newton's recently published *Principia* (1687) and studied it assiduously. It is said that he tore the book into sheets, carrying a few around at a time in his pocket to master it in his spare time. Demoivre made the acquaintance of Newton, Edmund Halley, and other members of the Royal Society. His mathematical talents were recognized, and in 1695 he presented his first paper to the society, "Method of Fluxions," on Newton's calculus. By 1697 he had been elected a fellow of the Royal Society.

Demoivre published a number of papers, but his most original work was a book on the subject of probability, *Doctrine of Chances* (1718). It contained several innovations, including methods for approximating to functions of large numbers. Isaac Todhunter, historian of theories of probability, contended that the subject owed more to Demoivre than any other mathematician, except possibly Pierre Simon de Laplace. It was as a natural extension of his writings on probability that Demoivre wrote *Annuities on Lives* (1725), the first mathematical work on this subject. It is based on a law of mortality that differs little from one devised by John Hudd in 1671. Though Demoivre's principles have since been modified, his work was still being defended by eminent actuarial mathematicians of the 19th century. Demoivre accused Thomas Simpson, a younger pioneer of the same subject, of plagiarism but later dropped the charge.

Demoivre was honored by many European societies. One important theorem applying complex or "imaginary" numbers to trigonometry bears his name. He died in London on November 27, 1754.