



## **Jacob Bernoulli (1654 – 1705)**

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Jacob Bernoulli (also known as James or Jacques) (27 December 1654 – 16 August 1705) was one of the many prominent mathematicians in the Bernoulli family.

Jacob Bernoulli was born in Basel, Switzerland. Following his father's wish, he studied theology and entered the ministry. But contrary to the desires of his parents, he also studied mathematics and astronomy. He traveled throughout Europe from 1676 to 1682, learning about the latest discoveries in mathematics and the sciences. This included the work of Robert Boyle and Robert Hooke.

He became familiar with calculus through a correspondence with Gottfried Leibniz, then collaborated with his brother Johann on various applications, notably publishing papers on transcendental curves (1696) and isoperimetry (1700, 1701). In 1690, Jacob Bernoulli became the first person to develop the technique for solving separable differential equations.

Upon returning to Basel in 1682, he founded a school for mathematics and the sciences. He was appointed professor of mathematics at the University of Basel in 1687, remaining in this position for the rest of his life.

### **Important works:**

Jacob Bernoulli is best known for the work *Ars Conjectandi* (The Art of Conjecture), published eight years after his death in 1713 by his nephew Nicholas. In this work, he described the known results in probability theory and in enumeration, often providing alternative proofs of known results. This work also includes the application

of probability theory to games of chance and his introduction of the theorem known as the law of large numbers. The terms Bernoulli trial and Bernoulli numbers result from this work. The lunar crater Bernoulli is also named after him jointly with his brother Johann.