

Chapter 1 : Johann Bernoulli – Wikipedia Republished // WIKI 2

Johann Bernoulli, (born August 6 [July 27, Old Style], , Basel, Switzerland–died January 1, , Basel), major member of the Bernoulli family of Swiss mathematicians. He investigated the then new mathematical calculus, which he applied to the measurement of curves, to differential equations, and to mechanical problems.

He was the brother of Jacob Bernoulli but Johann was twelve years younger than his brother Jacob which meant that Jacob was already a young man while Johann was still a child. The two brothers were to have an important influence on each others mathematical development and it was particularly true that in his early years Johann must have been greatly influenced by seeing Jacob head towards a mathematical career despite the objections of his parents. As to his education as a child, Johann wrote in his autobiography that his parents: This religion was the Calvinist faith which had forced his grandparents to flee from Antwerp to avoid religious persecution. The subject that Johann Bernoulli was to study at university was medicine, a topic that many members of the Bernoulli family ended up studying despite their liking for mathematics and mathematical physics. At Basel University Johann took courses in medicine but he studied mathematics with his brother Jacob. After two years of studying together Johann became the equal of his brother in mathematical skill. As one would expect, it upset Johann Bernoulli greatly that this work did not acknowledge the fact that it was based on his lectures. The preface of the book contains only the statement: However, few believed Johann Bernoulli until the proofs discovered in In , while in Paris, he met Varignon and this resulted in a strong friendship and also Varignon learned much about applications of the calculus from Johann Bernoulli over the many years which they corresponded. Johann Bernoulli also began a correspondence with Leibniz which was to prove very fruitful. In fact this turned out to be the most major correspondence which Leibniz carried out. This was a period of considerable mathematical achievement for Johann Bernoulli. Although he was working on his doctoral dissertation in medicine he was producing numerous papers on mathematical topics which he was publishing and also important results which were contained in his correspondence. Johann Bernoulli had already solved the problem of the catenary which had been posed by his brother in He had solved this in the same year that his brother posed the problem and it was his first important mathematical result produced independently of his brother, although it used ideas that Jacob had given when he posed the problem. At this stage Johann and Jacob were learning much from each other in a reasonably friendly rivalry which, a few years later, would descend into open hostility. For example they worked together on caustic curves during although they did not publish the work jointly. Even at this stage the rivalry was too severe to allow joint publications and they would never publish joint work at any time despite working on similar topics. Johann did not wish to follow a career in medicine however, but there were little prospects of a chair at Basel in mathematics since Jacob filled this post. A stream of mathematical ideas continued to flow from Johann Bernoulli. Integration to Bernoulli was simply viewed as the inverse operation to differentiation and with this approach he had great success in integrating differential equations. He summed series, and discovered addition theorems for trigonometric and hyperbolic functions using the differential equations they satisfy. This outstanding contribution to mathematics reaped its reward in when he received two offers of chairs. He was offered a chair at Halle and the chair of mathematics at Groningen. It is interesting to note that Johann was appointed to the chair of mathematics but his letter of appointment mentions his medical skills and offered him the chance to practice medicine while in Groningen. Johann Bernoulli had married Drothea Falkner and their first child was seven months old when the family departed for Holland on 1 September This first child was Nicolaus II Bernoulli who also went on to become a mathematician. After setting out on 1 September they had to cross a region where armies were fighting, then travel down the Rhine by boat, finally taking a carriage and another boat to their destination. They arrived on 22 October to begin ten years in Groningen which were to be filled with difficulties. Johann was involved in a number of religious disputes, his second child was a daughter who was born in and only lived for six weeks, and he suffered so severe an illness that he was reported to have died. In one dispute he was accused of denying the resurrection of the body, a charge based on medical opinions he held. Bernoulli wrote a long twelve page reply to the Governors of the University,

which still exists [16]: He introduced physics experiments in his teaching, but Sierksma writes in [16] that these: Interpretations of these natural phenomenon alone would be incompatible with either. While he held the chair in Groningen, Johann Bernoulli competed with his brother in what was becoming an interesting mathematical tussle but an unfortunately bitter personal battle. Johann proposed the problem of the brachistochrone in June and challenged others to solve it. Leibniz persuaded him to give a longer time so that foreign mathematicians would also have a chance to solve the problem. Five solutions were obtained, Jacob Bernoulli and Leibniz both solving the problem in addition to Johann Bernoulli. The solution of the cycloid had not been found by Galileo who had earlier given an incorrect solution. Not to be outdone by his brother Jacob then proposed the isoperimetric problem , minimising the area enclosed by a curve. They decided to return to Basel along with Nicolaus I Bernoulli , his nephew, who had been studying mathematics in Groningen with his uncle. Hence Johann was not returning to Basel expecting the chair of mathematics, rather he was returning to fill the chair of Greek. Of course the death of his brother was to lead to a change of plan. Before reaching Basel, however, Johann was tempted by an offer of a chair at the University of Utrecht. He tried to persuade Johann to go to Utrecht but Bernoulli was set on returning to Basel. There were other offers that Johann turned down, such as Leiden, a second offer from Utrecht and a generous offer for him to return to Groningen in . In Johann became involved in the Newton - Leibniz controversy. He strongly supported Leibniz and added weight to the argument by showing the power of his calculus in solving certain problems which Newton had failed to solve with his methods. Bernoulli also made important contributions to mechanics with his work on kinetic energy, which, not surprisingly, was another topic on which mathematicians argued over for many years. The work is dated but this is incorrect and was an attempt by Johann to obtain priority over his own son Daniel. This was not an isolated incident, and as he had competed with his brother, he now competed with his own son. Johann Bernoulli attained great fame in his lifetime. He was known as the "Archimedes of his age" and this is indeed inscribed on his tombstone.

Chapter 2 : Leonhard Euler and the Bernoullis : M. B. W. Tent :

Johann Bernoulli was the tenth child of Nicolaus and Margaretha Bernoulli. He was the brother of Jacob Bernoulli but Johann was twelve years younger than his brother Jacob which meant that Jacob was already a young man while Johann was still a child.

He was an early proponent of Leibnizian calculus and had sided with Gottfried Wilhelm Leibniz during the Leibniz–Newton calculus controversy. He is known for his numerous contributions to calculus, and along with his brother Johann, was one of the founders of the calculus of variations. He also discovered the fundamental mathematical constant e . However, his most important contribution was in the field of probability, where he derived the first version of the law of large numbers in his work *Ars Conjectandi*. But contrary to the desires of his parents,[4] he also studied mathematics and astronomy. He traveled throughout Europe from to , learning about the latest discoveries in mathematics and the sciences under leading figures of the time. During this time he also produced an incorrect theory of comets. Bernoulli returned to Switzerland and began teaching mechanics at the University in Basel from . In he married Judith Stupanus; and they had two children. During this decade, he also began a fertile research career. His travels allowed him to establish correspondence with many leading mathematicians and scientists of his era, which he maintained throughout his life. He also studied Isaac Barrow and John Wallis, leading to his interest in infinitesimal geometry. Apart from these, it was between and that many of the results that were to make up *Ars Conjectandi* were discovered. He was appointed professor of mathematics at the University of Basel in , remaining in this position for the rest of his life. By that time, he had begun tutoring his brother Johann Bernoulli on mathematical topics. The two brothers began to study the calculus as presented by Leibniz in his paper on the differential calculus in " *Nova Methodus pro Maximis et Minimis* " published in *Acta Eruditorum*. They also studied the publications of von Tschirnhaus. Jacob collaborated with his brother on various applications of calculus. Jacob Bernoulli died in . The lunar crater Bernoulli is also named after him jointly with his brother Johann. His geometry result gave a construction to divide any triangle into four equal parts with two perpendicular lines. By he had published important work on infinite series and published his law of large numbers in probability theory.

Chapter 3 : Bernoulli_Jacob biography

Johann Bernoulli was a Swiss mathematician who lived from 1667 to 1748. In this lesson, you will learn more about Bernoulli and his contributions to the field of mathematics, and take a quiz covering.

His father desired that he study business so that he might take over the family spice trade, but Johann Bernoulli did not like business and convinced his father to allow him to study medicine instead. However, Johann Bernoulli did not enjoy medicine either and began studying mathematics on the side with his older brother Jacob. They were among the first mathematicians to not only study and understand calculus but to apply it to various problems. Later, in 1694, he married Dorothea Falkner and soon after accepted a position as the professor of mathematics at the University of Groningen. At the request of his father-in-law, Johann Bernoulli began the voyage back to his home town of Basel in 1698. Johann Bernoulli defended Leibniz by showing that he had solved certain problems with his methods that Newton had failed to solve. What are the laws according to which a perfectly hard body, put into motion, moves another body of the same nature either at rest or in motion, and which it encounters either in a vacuum or in a plenum? In defending a view previously espoused by Leibniz, he found himself postulating an infinite external force required to make the body elastic by overcoming the infinite internal force making the body hard. In consequence, he was disqualified for the prize, which was won by Maclaurin. Bernoulli received an honourable mention in both competitions. Private life[edit] Although Jacob and Johann Bernoulli worked together before Johann graduated from Basel University, shortly after this, the two developed a jealous and competitive relationship. In the father-son duo nearly simultaneously published separate works on hydrodynamics. The Bernoulli brothers often worked on the same problems, but not without friction. Their most bitter dispute concerned finding the equation for the path followed by a particle from one point to another in the shortest time, if the particle is acted upon by gravity alone, a problem originally discussed by Galileo. In 1696, Jacob offered a reward for its solution. Accepting the challenge, Johann proposed the cycloid, the path of a point on a moving wheel, pointing out at the same time the relation this curve bears to the path described by a ray of light passing through strata of variable density. A protracted, bitter dispute then arose when Jacob challenged the solution and proposed his own. The dispute marked the origin of a new discipline, the calculus of variations. I recognize I owe much to the insights of the Messrs. Bernoulli, especially to those of the young John, currently a professor in Groningen. I did unceremoniously use their discoveries, as well as those of Mr. For this reason I consent that they claim as much credit as they please, and will content myself with what they will agree to leave me. Retrieved 18 June 2012. *Dissertatio de ancoris* in Latin. Retrieved 20 June 2012.

Chapter 4 : Jacob Bernoulli | Revolv

Johann had a son, Daniel, who grew up to be as talented as his father. This was a major problem for his father. Daniel won a mathematics prize, which Johann had also been in the running for it.

The family, of Belgium origin, were refugees fleeing from persecution by the Spanish rulers of the Netherlands. Alba set up the Council of Troubles which was a court that condemned over people but most, like the Bernoulli family who were of the Protestant faith, fled the country. Nicolaus Bernoulli was an important citizen of Basel, being a member of the town council and a magistrate. During the time that Jacob Bernoulli was taking his university degrees he was studying mathematics and astronomy against the wishes of his parents. It is worth remarking that this was a typical pattern for many of the Bernoulli family who made a study of mathematics despite pressure to make a career in other areas. However Jacob Bernoulli was the first to go down this road so for him it was rather different in that there was no tradition of mathematics in the family before Jacob Bernoulli. Later members of the family must have been much influenced by the tradition of studying mathematics and mathematical physics. In , after taking his theology degree, Bernoulli moved to Geneva where he worked as a tutor. He then travelled to France spending two years studying with the followers of Descartes who were led at this time by Malebranche. In Bernoulli travelled to the Netherlands where he met many mathematicians including Hudde. Continuing his studies with the leading mathematicians and scientists of Europe he went to England where, among others, he met Boyle and Hooke. At this time he was deeply interested in astronomy and produced a work giving an incorrect theory of comets. As a result of his travels, Bernoulli began a correspondence with many mathematicians which he carried on over many years. Jacob Bernoulli returned to Switzerland and taught mechanics at the University in Basel from , giving a series of important lectures on the mechanics of solids and liquids. Since his degree was in theology it would have been natural for him to turn to the Church, but although he was offered an appointment in the Church he turned it down. Jacob Bernoulli also studied the work of Wallis and Barrow and through these he became interested in infinitesimal geometry. Jacob began publishing in the journal Acta Eruditorum which was established in Leipzig in . In Jacob Bernoulli married Judith Stupanus. These children, unlike many members of the Bernoulli family, did not go on to become mathematicians or physicists. One of the most significant events concerning the mathematical studies of Jacob Bernoulli occurred when his younger brother, Johann Bernoulli , began to work on mathematical topics. Johann was told by his father to study medicine but while he was studying that topic he asked his brother Jacob to teach him mathematics. Jacob Bernoulli was appointed professor of mathematics in Basel in and the two brothers began to study the calculus as presented by Leibniz in his paper on the differential calculus in Nova Methodus pro Maximis et Minimis, itemque Tangentibus They also studied the publications of von Tschirnhaus. Although Jacob and Johann both worked on similar problems their relationship was soon to change from one of collaborators to one of rivals. Of course this was a grossly unfair statement. Jacob continued to attack his brother in print in a disgraceful and unnecessary fashion, particularly after . However he did not reserve public criticism for his brother. He was critical of the university authorities at Basel and again he was very public in making critical statements that, as one would expect, left him in a difficult situation at the university. Hofmann writes in [1]: As suggested by this quote the brothers were equally at fault in their quarrel. Johann would have liked the chair of mathematics at Basel which Jacob held and he certainly resented having to move to Holland in . This was another factor in the complete breakdown of relations in . Of course the dispute between the brothers over who could obtain the greatest recognition was a particularly stupid one in the sense that both made contributions to mathematics of the very greatest importance. Whether the rivalry spurred them on to greater things or whether they might have achieved more had they continued their initial collaboration, it is impossible to say. His geometry result gave a construction to divide any triangle into four equal parts with two perpendicular lines. By he had published important work on infinite series and published his law of large numbers in probability theory. The interpretation of probability as relative-frequency says that if an experiment is repeated a large number of times then the relative frequency with which an event occurs equals the probability of the event. The law of

large numbers is a mathematical interpretation of this result. Jacob Bernoulli published five treatises on infinite series between 1686 and 1690. Euler was the first to find the sum of this series in 1736. Bernoulli also studied the exponential series which came out of examining compound interest. In May 1691 in a paper published in *Acta Eruditorum*, Jacob Bernoulli showed that the problem of determining the isochrone is equivalent to solving a first-order nonlinear differential equation. The isochrone, or curve of constant descent, is the curve along which a particle will descend under gravity from any point to the bottom in exactly the same time, no matter what the starting point. It had been studied by Huygens in 1673 and Leibniz in 1686. After finding the differential equation, Bernoulli then solved it by what we now call separation of variables. Jacob Bernoulli also discovered a general method to determine evolutes of a curve as the envelope of its circles of curvature. He also investigated caustic curves and in particular he studied these associated curves of the parabola, the logarithmic spiral and epicycloids around the parabola. The lemniscate of Bernoulli was first conceived by Jacob Bernoulli in 1691. In 1692 he investigated the drawbridge problem which seeks the curve required so that a weight sliding along the cable always keeps the drawbridge balanced. The work was incomplete at the time of his death but it is still a work of the greatest significance in the theory of probability. In the book *Ars Conjecturae* Bernoulli reviewed work of others on probability, in particular work by van Schooten, Leibniz, and Prestet. The Bernoulli numbers appear in the book in a discussion of the exponential series. Many examples are given on how much one would expect to win playing various game of chance. There are interesting thoughts on what probability really is [1]: He was self-willed, obstinate, aggressive, vindictive, beset by feelings of inferiority, and yet firmly convinced of his own abilities. With these characteristics, he necessarily had to collide with his similarly disposed brother. He nevertheless exerted the most lasting influence on the latter. Bernoulli was one of the most significant promoters of the formal methods of higher analysis. Astuteness and elegance are seldom found in his method of presentation and expression, but there is a maximum of integrity. Jacob Bernoulli continued to hold the chair of mathematics at Basel until his death in 1705 when the chair was filled by his brother Johann. Jacob had always found the properties of the logarithmic spiral to be almost magical and he had requested that it be carved on his tombstone with the Latin inscription *Eadem Mutata Resurgo* meaning "I shall arise the same though changed".

Chapter 5 : Leonhard Euler and the Bernoullis: Mathematicians from Basel - CRC Press Book

17 Johann Bernoulli Returns to Basel with His Family 18 Johann Bernoulli's Son Daniel Grows Up 19 Daniel Bernoulli, the Paris Prize, and the Longitude Problem.

The Turner Collection, Keele University. Daniel Bernoulli, born in , came from a long line of mathematicians. His father Johann was head of mathematics at Groningen University in the Netherlands. The family was prone to bitter rivalry: Some years earlier Johann had applied to become professor of mathematics at Basel University, but this was denied him because his elder brother, Jakob had deliberately schemed to prevent him getting the post. Later Jakob got the professorship. En route to Basel, Johann learned that Jakob had just died of tuberculosis. He later recalled rather shamelessly that " Strangely enough, his own father had tried a similar strategy but Johann had resisted - so did Daniel. However, Daniel spent considerable time with his father and learned much about the secrets of the Calculus which Johann had exploited to gain his fame. By the time Daniel was 13, Johann was reconciled to the fact that his son would never be a merchant but absolutely refused to allow him to take up mathematics as a profession as there was little or no money in it. He decreed that Daniel would become a doctor. For the next few years Daniel studied medicine but never gave up his mathematics. The young Bernoulli found a kindred spirit in the English physician William Harvey who wrote in his book *On the Movement of Heat and Blood in Animals* that the heart was like a pump which forced blood to flow like a fluid through our arteries. After completing his medical studies at the age of 21, he sought an academic position so that he could further investigate the basic rules by which fluids move; something which had eluded his father and even the great Isaac Newton. Johann Bernoulli never credited Newton with his discoveries in connection with the Calculus, instead giving the credit almost entirely to Leibnitz; another source of rivalry in the early eighteenth century. Daniel applied for two chairs at Basel in anatomy and botany. These posts were awarded by lot, and unfortunately for Daniel, he lost out both times. He submitted his design to the French Academy and took first prize. At first Daniel was not keen to travel to such a distant land, but his elder brother Nikolas offered to go with him. Catherine was so keen to secure Daniel that she agreed to offer a second chair to Nikolas! Unfortunately, Nikolas died of tuberculosis a year later. At first Daniel thought of returning home but stayed when his father suggested that one of his own students, a certain Leonard Euler would make an able assistant for Daniel in his research. Bernoulli discovers how to measure blood pressure Together Bernoulli and Euler tried to discover more about the flow of fluids. In particular, they wanted to know about the relationship between the speed at which blood flows and its pressure. Soon physicians all over Europe were measuring patients blood pressure by sticking point-ended glass tubes directly into their arteries. It was not until about years later, in that an Italian doctor discovered a less painful method which is still in use today. Bernoulli discovers the fluid equation Taking his discoveries further, Daniel Bernoulli now returned to his earlier work on Conservation of Energy. It was known that a moving body exchanges its kinetic energy for potential energy when it gains height. Daniel realised that in a similar way, a moving fluid exchanges its kinetic energy for pressure. Mathematically this law is now written: A consequence of this law is that if the velocity increases then the pressure falls. This is exploited by the wing of an aeroplane which is designed to create an area of fast flowing air above its surface. The pressure of this area is lower and so the wing is sucked upwards. Daniel himself had almost completed his treatise *Hydrodynamica* and longed to return to Basel. Despite numerous attempts Daniel repeatedly lost out in ballots for academic positions in Basel but two years later he finally succeeded. He returned home in to discover that he and his father had been jointly awarded another prize by the French Academy of Sciences. It took Daniel a further 3 years to complete his work on fluids. It is thought that he identified himself in this humble fashion as an attempt to mend the feud between himself and his father. But a year later his father published his own work called *Hydraulics* which appeared to have a lot in common with that of his son and the talk was of blatant plagiarism. To some extent Daniel Bernoulli lost much of his drive in mathematics after these events and turned more to medicine and physiology. He remained in Basel and died there on March 17th, at the age of

Chapter 6 : Bernoulli_Johann biography

Johann Bernoulli (). "Brief account of the wicked accusation, shameless scorn and foul satirical mockery poured forth upon the undersigned by the student, Petrus Venhuijsen, in his disputatio de Unione Anima cum corpore, held on 15 February " (Dutch).

The Bernoulli Family Jacob Bernouli - Johann Bernouli - Daniel Bernoulli - The Bernoulli family may sound like a Mafia family from a television show, but they were the most predominant math family of Europe. Their fame was in the late 17th and early 18th century in Bale, Switzerland. The uniqueness of this particular family is a stubborn streak which brought devastation to the family life. The Bernoulli family was originally from Holland with strong Calvinism religion. They needed to avoid Spanish religious persecution, so they fled to Switzerland. Nicholas Bernoulli brought the family to Switzerland. This family was not math oriented, they had a spice business in Bale. He had three sons which two of them became the most influential math experts in the academic community yet hostile to each other. His parents compelled him to study philosophy and theology. Like a Bernoulli, he resented the studies but he did acquire a masters in philosophy. He was intrigued with mathematics and astronomy so much he included them with his studies, regardless his parents wishes. He made more of a career in mathematics than philosophy. He became the first Bernoulli to be recognized as a strong influential mathematician. He contributed highly to probability: He may be a brilliant mathematician, but he did have a mean streak. His younger brother, Johann or John, was born in and died in Bale Switzerland. He did not do very well in the spice business. At 16, he entered the University of Bale and studied medicine. He asked his brother, Jacob, to teach him mathematics. By this time, Jacob was a professor of mathematics. At first, Jacob had no problem teaching his little brother. As time went on, the Bernoulli blood began to boil. Jacob refer to him as a student repeating what the teacher taught him, in other words a parrot. Jacob and Johann went back and forth with comments in the academic community which developed a notorious reputation of their family togetherness. Despite family problems, Johann was a excellent mathematician. He used calculus to solve problems which Newton failed to solve in the laws of gravitaiton. In , Jacob was the chair of mathematics in Bale. Johann wanted that chair, but he was offered a chair in Holland. He vowed not to come back to Bale. While traveling, he did not know his brother, Jacob, died of tuberculosis. Johann had three sons and one of his sons became a profound mathematician. Daniel Bernoulli, born and died in Bale. Johann was determined to make Daniel a merchant. Like a Bernoulli, Daniel did not want to learn the business. He wanted to study mathematics. He tried to convince Daniel that there is no money in mathematics. Daniel did study medicine and applied mathematical physics to it, which he received a medical doctorate. Daniel Bernoulli was natural philosopher who applied mathematics in his work. He analyzed the flow of water from a hole in a container. This was for conservation of energy which he developed pumps and machines to raise water. Daniel was a home-body person. He did not like to travel much. He would get sick, complain about the weather, and be miserable. Daniel travel to Danzig, Hamburg, Holland, and Paris. He worked in Venice and St. He would ask his father to come home, but his father said no. His father sent his best student, Leonard Euler, to work with him. Daniel and Euler worked in St. Petersburg on the vibration and frequency of sounds by using musical instruments. In , he returned to Bale and entered a contest in Paris Academy for his ideas of astronomy. His father entered at the same time which they jointly won the Grand Prize. The Bernoulli blood may be filled with fire, but they did have a passion for mathematics. Contributed by Tina Gonzales Golba, P. Mathematics and physical world. School of Mathematics and Statistics September

Chapter 7 : Leonhard Euler and the Bernoullis - M B W Tent - Bok () | Bokus

Johann Bernoulli (also known as Jean or John; 6 August [O.S. 27 July] - 1 January) was a Swiss mathematician and was one of the many prominent mathematicians in the Bernoulli family.

He investigated the then new mathematical calculus , which he applied to the measurement of curves, to differential equations, and to mechanical problems. In 1692 he wrote two texts, not published until later, on differential and integral calculus. From then he taught mathematics at Groningen, Netherlands, and, on the death of his elder brother, Jakob , assumed a professorship at Basel. Johann exceeded his brother in the number of contributions he made to mathematics. He applied calculus to the determination of lengths and areas of curves, such as the isochrone, along which a body will fall at constant speed, and the tautochrone, which was found to be important in clock construction. He also made contributions to the theory of differential equations , the mathematics of ship sails, and optics. The Bernoulli brothers often worked on the same problems, but not without friction. Jakob discovered that the curve was a catenary. Jakob wrote a letter to Johann, telling him that he had solved the problem but without revealing the solution. This dispute was the beginning of the quarrel between them. Johann Bernoulli and Jakob Bernoulli working on mathematical problems. In Jakob directly challenged Johann to solve the problem. Johann published a solution without the full derivation that was only partially correct. The subsequent quarrel was the final break between the brothers. Ardent in his friendships and keen in his resentments, Johann zealously defended the cause of G. Leibniz in the dispute with Isaac Newton over who had originated calculus. His text in integral calculus appeared in 1691 and his differential calculus shortly afterward. During his last years he worked mainly on the principles of mechanics. His works were published in *Opera Johannis Bernoullii*, 4 vol. Learn More in these related Britannica articles:

Chapter 8 : Johann Bernoulli by Andrew Dalzon on Prezi

Jacob Bernoulli was the brother of Johann Bernoulli and the uncle of Daniel Bernoulli. He was compelled to study philosophy and theology by his parents, which he greatly resented, and he graduated from the University of Basel with a master's degree in philosophy in 1683 and a licentiate in theology in 1685.

Chapter 9 : Johann Bernoulli (and his brothers)

"Leonhard Euler and the Bernoullis is a fascinating tale of the Bernoulli family and Euler's association with them. Successful merchants in the 16th and 17th centuries, the Bernoullis were driven out of Antwerp during the persecution of the Huguenots and settled first in Frankfurt, and then in Basel.