

Isaac Newton: Contributions to Calculus

Modern differentiable calculus, as we know, understand, and learn in schools today has a long history behind it, most of which was founded by Isaac Newton in the 17th century. Having attended Cambridge University in 1661, being elected a Fellow of Trinity College in 1667, and Lucasian Professor of Mathematics in 1669, Newton quickly developed a love for math and science, and made it his passion to explore these fields in greater depth throughout his life.

Newton's contributions to modern calculus are actually quite similar to Gottfried Wilhelm Leibniz's contributions to calculus, around the same time period, but my focus is solely on Newton. Perhaps his two most important contributions include his method of fluxions, in which he developed in 1666, and his method of integration by infinite series, in 1668. From these two major introductions, he discovered the Binomial Theorem or expansion, the discovery of the rate of change, and the discovery of summation. Because his discoveries define the major, finer point of calculus and because his published work was often considered to have been found first, he is often credited as the inventor of calculus, despite Leibniz also contributing, to some degree. Although most people acknowledge the fact that Newton played a crucial role in the development of calculus, many may not have known why.

Isaac Newton developed calculus so he could work with complex physics. His theories and laws in mechanics, gravitation, fluids, motion, and chemistry were a direct result from the derivation of his contributions and work to calculus. Without these contributions, the law of physics as we understand them today would have been delayed or possibly even represented mathematically different had Newton not contributed his ideas. The works of this brilliant mathematician led to the foundation of mathematics as being a complete entity, capable of handling and solving many of the problems we face in this world.

References:

Fowler, Michael. "Newton's Life." *Isaac Newton*. N.p., n.d. Web. 4 May 2010.

<<http://galileoandeinstein.physics.virginia.edu/lectures/newton.html>>.

Hall, Alfred. "Isaac Newton's Life." *Newton*. N.p., 1998. Web. 4 May 2010.

<<http://www.newton.ac.uk/newtlife.html>>.

MAT266, Calculus II, Spring 2007 - Kathryn Jordan, "Newton and Leibnez: A Background and Contrast"

MAT267, Calculus III, Fall 2007 - Jennifer Lehrman, "Newton and Leibnez: The Founders of Calculus"