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Who invented Calculus, Newton, Leibniz, both or neither? Calculus isthe branch of mathematics that study rates of change of objects in in theuniverse.

There are two main branches of calculus, differentiation andintegration, these focus on limits, functions, derivatives and integrals. Calculus has widespread applications in science, economics, and engineering andcan solve many problems for which algebra alone is insufficient. The history ofcalculus is perhaps one of the most controversial topics of the history ofmathematics. Calculus wasofficially invented in the 17th century by two mathematicians SirIsaac Newton, and Gottfried Leibniz. The controversy lies in the fact of whoinvented Calculus first and if anyone plagiarised there fellow contemporaries. However, although quarrels were ubiquitous at the time, this one was soinfamous due to the prestigious nature of the men involved. Newton issaid to have invented calculus at 1665 in his personal books but was too afraidto release due to his anticipation of backlash. He later released this in hisfamous book called " Philosophiæ Naturalis Principia Mathematica", published in1687, which is also considered to be the most influential book in the history of science.

Furthermore, the argument that Newton plagiarised Leibniz is flawed as whenthis was written in 1655, Leibniz was 20 and thus new little about mathematics. Howeverprior to this, the idea of calculus was already invented by the Ancient Greeks, most notably Archimedes. He had many great inventions that help the developmentof maths, science and philosophy, but amongst these was, according to some, hisgreatest invention. This is the invention of " integral calculus". Using this, he measured the section ofareas

surrounded by geometric figures. He broke the sections into a number ofrectangles and then added the areas together. This principle is known as'integration'. Also a part of the discovery of ' integral calculus' is'differential calculus'.

He calculated ways to approximate the slope of the tangentlines of his figures. Further into the ages, in the Middle East, a mathematician calledAlhazen derived a formula for the sum of fourth powers. He then used these resultsto carry out calculations that are now known as integration. Additionally inthe 14th century, Indian mathematician Madhava of Sangamagrama statedcomponents of calculus such as infinite series and the Taylor seriesapproximations. However Madhava was not able to combine to two differing ideasunder the two main branches of calculus, integrals and derivatives.

Furthermore, he was unable to show a distinct connection between the two, and transformcalculus to what it is today. Interestingly, there are mathematicians, scientist and philosophersin Europe that predate Newton and Leibniz, amongst them are Isaac Barrow, ReneDescartes, Pierre de Fermat, Blaise Pascal and John Wallis. Notably, Fermatinvented an adequality method for determining maxima's, minima's and tangentsto various curves that was closely related to differentiation.

This lead toIsaac Newton admitting that his own early ideas about calculus came directlyfrom Fermat's adequality. Moreover, the first full proof of the fundamental theoremof calculus was devised by Isaac Barrow. Newton and Leibniz both thought differently about thefundamental concepts of calculus.

Furthermore, while Leibniz thought of thevariables x and y as ranging over sequences or infinitely close, Newtonconsidered variables changing with time. Leibniz introduced dx and dy assuccessive values of these sequences. Leibniz knew that dy/dx givesthe tangent but he did not use it as a defining property.

On the other hand, Newton used quantities x' and y', which were finite velocities, to compute thetangent. Of course neither Leibniz nor Newton thought in terms of functions, but both always thought in terms of graphs. For Newton the calculus wasgeometrical while Leibniz took it towards analysis. Onthe other hand, Newton used quantities x' and y', which were finite velocities, to compute the tangent, and neither Leibniz nor Newton thought in terms offunctions, but both always thought in terms of graphs. For Newton the calculuswas geometrical while Leibniz took a more analytical approach.