

Proving the Second Fundamental Theorem of Calculus

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Abstract

Originally developed in accordance to the mathematical progress of Gottfried Leibniz and Sir Isaac Newton, the Second Fundamental Theorem of Calculus has proven to be an essential formula whether performed in a given mathematical equation for integrals or in application to real world situations. Within the context of this paper, exploration of the Second Fundamental Theorem of Calculus will not only encompass examples of its application but the methods in which this theorem came to be. Along with explanation of the theorem's development, a proof is established using Riemann Sum specifically for quadratic formula, displaying the Second Fundamental Theorem of Calculus' functionality and validity. The uses of mathematical techniques such as Riemann Sum, sigma notation along with basic concepts of algebra provide a final equation at the end of the proof. This resulting equation is the formula for the Second Fundamental Theorem of Calculus.