

The discovery of infinite products by Wallis and infinite series by Newton marked the beginning of the modern mathematical era. The use of series allowed Newton to find the area under a curve defined by any algebraic equation, an achievement completely beyond the earlier methods of Torricelli, Fermat, and Pascal. The work of Newton and his contemporaries, including Leibniz and the Bernoullis, was concentrated in mathematical analysis and physics. Euler's prodigious mathematical accomplishments dramatically extended the scope of series and products to algebra, combinatorics, and number theory. Series and products proved pivotal in the work of Gauss, Abel, and Jacobi in elliptic functions; in Boole and Lagrange's operator calculus; and in Cayley, Sylvester, and Hilbert's invariant theory. Series and products still play a critical role in the mathematics of today. Consider the conjectures of Langlands, including that of Shimura-Taniyama, leading to Wiles's proof of Fermat's last theorem.

Drawing on the original work of mathematicians from Europe, Asia, and America, Ranjan Roy discusses many facets of the discovery and use of infinite series and products. He gives context and motivation for these discoveries, including original notation and diagrams when practical. He presents multiple derivations for many important theorems and formulas and provides interesting exercises, supplementing the results of each chapter.

Roy deals with numerous results, theorems, and methods used by students, mathematicians, engineers, and physicists. Moreover, since he presents original mathematical insights often omitted from textbooks, his work may be very helpful to mathematics teachers and researchers.

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