

## Abstract

More than three centuries after its creation, calculus remains a dazzling intellectual achievement and the gateway into higher mathematics. This book charts its growth and development by sampling from the work of some of its foremost practitioners, beginning with Isaac Newton and Gottfried Wilhelm Leibniz in the late seventeenth century and continuing to Henri Lebesgue at the dawn of the twentieth. William Dunham lucidly presents the definitions, theorems, and proofs. 'Students of literature read Shakespeare; students of music listen to Bach,' he writes. But this tradition of studying the major works of the 'masters' is, if not wholly absent, certainly uncommon in mathematics. This book seeks to redress that situation.

Like a great museum, The Calculus Gallery is filled with masterpieces, among which are Bernoulli's early attack upon the harmonic series (1689), Euler's brilliant approximation of Pi (1779), Cauchy's classic proof of the fundamental theorem of calculus (1823), Weierstrass's mind-boggling counterexample (1872), and Baire's original 'category theorem' (1899). Collectively, these selections document the evolution of calculus from a powerful but logically chaotic subject into one whose foundations are thorough, rigorous, and unflinching—a story of genius triumphing over some of the toughest, subtlest problems imaginable.

Anyone who has studied and enjoyed calculus will discover in these pages the sheer excitement each mathematician must have felt when pushing into the unknown. In touring The Calculus Gallery, we can see how it all came to be.

## Inhalt

Newton  
Leibniz

The Bernoullis  
Euler  
First Interlude  
Cauchy  
Riemann  
Liouville  
Weierstrass  
Second Interlude  
Cantor  
Volterra  
Baire  
Lebesgue

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