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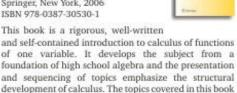
A Course in Calculus and Real Analysis
-Sudhir R. Ghorpade & Balmohan V. Limaye
432 pages, 71 figures
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This book is a rigorous, well-written and self-contained introduction to calculus of functions of one variable. It develops the subject from a foundation of high school algebra and the presentation and sequencing of topics emphasize the structural development of calculus. The topics covered in this book are continuity, differentiation and integration of functions of one variable as well as sequences, infinite series and improper integrals. Due importance is given to computational techniques and applications.

The book contains many novel features which are rarely found in other books on calculus. The authors have striven to make a distinction between the intrinsic definition of a geometric notion and its analytic characterization. Throughout the book, the authors highlight the fact that calculus provides a firm foundation to several important concepts and results that are generally taken for granted in high school. The logarithmic, exponential and trignometric functions are defined using the theory of Riemann integration and are shown to be transcendental. The cosine function is used to give a precise definition of an angle. A number of topics that may have been inadequately covered in calculus courses and glossed over in real analysis courses are treated here in considerable detail. As such, this book provides a unified exposition of calculus and real analysis. It also has a large collection of interesting exercises. Moreover, each chapter ends with an informative 'Notes and Comments' section.

This high-standard book can be used as a textbook for a serious undergraduate course in calculus. Parts of the book can be used for postgraduate or advanced undergraduate courses in real analysis. It is available in a paperback edition published by Springer (India), New Delhi. I would like to quote the following comment from a glowing review of this book by N. J. Wildberger, UNSW, Australia: "This book is a tour de force, and a necessary addition to the library of anyone involved in teaching calculus, or studying it seriously."

A sequel on calculus of functions of several variables is due to appear in the same Springer series.

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