

A Primer of Infinitesimal Analysis

By John L. Bell



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One of the most remarkable recent occurrences in mathematics is the refounding, on a rigorous basis, the idea of infinitesimal quantity, a notion which played an important role in the early development of the calculus and mathematical analysis. In this new and updated edition, basic calculus, together with some of its applications to simple physical problems, are presented through the use of a straightforward, rigorous, axiomatically formulated concept of 'zero-square', or 'nilpotent' infinitesimal - that is, a quantity so small that its square and all higher powers can be set, to zero. The systematic employment of these infinitesimals reduces the differential calculus to simple algebra and, at the same time, restores to use the "infinitesimal" methods figuring in traditional applications of the calculus to physical problems - a number of which are discussed in this book. This edition also contains an expanded historical and philosophical introduction.



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Editorial Review

Review

'This might turn out to be a boring, shallow book review: I merely LOVED the book...the explanations are so clear, so considerate; the author must have taught the subject many times, since he anticipates virtually every potential question, concern, and misconception in a student's or reader's mind.' MAA Reviews

'John Bell has done a first rate job in presenting an elementary introduction to this fascinating subject ... I recommend it highly.' J. P. Mayberry, British Journal for the Philosophy of Science

About the Author

John L. Bell is Professor of Philosophy at the University of Western Ontario. He is the author of 7 other books, including Models and Ultraproducts with A. B. Slomson, A Course in Mathematical Logic with M. Machover, Logical Options with D. DeVidi and G. Solomon, Set Theory: Boolean-Valued Models and Independence Proofs, and The Continuous and the Infinitesimal in Mathematics and Philosophy.

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