Core Books in Advanced Mathematics

Probability

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Preface

Advanced level mathematics syllabuses are once again undergoing changes of content and approach, following the revolution in the early 1960s which led to the unfortunate dichotomy between 'modern' and 'traditional' mathematics. The current trend in syllabuses for Advanced level mathematics now being developed and published by many GCE Boards is towards an integrated approach, taking the best of the topics and approaches of the modern and traditional, in an attempt to create a realistic examination target, through syllabuses which are maximal for examining and minimal for teaching. In addition, resulting from a number of initiatives, core syllabuses are being developed for Advanced level mathematics syllabuses, consisting of techniques of pure mathematics as taught in schools and colleges at this level.

The concept of a core can be used in several ways, one of which is mentioned above, namely the idea of a core syllabus to which options such as theoretical mechanics, further pure mathematics and statistics can be added. The books in this series are core books involving a different use of the core idea. They are books on a range of topics, each of which is central to the study of Advanced level mathematics; they form small core studies of their own, of topics which together cover the main areas of any single-subject mathematics syllabus at Advanced level.

Particularly at times when economic conditions make the problems of acquiring comprehensive textbooks giving complete syllabus coverage acute, schools and colleges and individual students can collect as many of the core books as they need, one or more, to supplement books already acquired, so that the most recent syllabuses of, for example, the London, Cambridge, JMB and AEB GCE Boards, can be covered at minimum expense. Alternatively, of course, the whole set of core books gives complete syllabus coverage of single-subject Advanced level mathematics syllabuses.

The aim of each book is to develop a major topic of the single-subject syllabuses, giving essential book work and worked examples and exercises arising from the authors' vast experience of examining at this level, and also including actual past GCE questions. Thus, the core books, as well as being suitable for use in either of the above ways, are ideal for supplementing comprehensive textbooks in the sense of providing more examples and exercises so necessary for preparation and revision for examinations on the Advanced level mathematics syllabuses offered by the GCE Boards.

An attempt has been made to give a readable yet mathematically accurate

explanation of the concepts involved in the work on basic probability, many of which are first introduced by means of an example. A wide selection of examples for the reader to work is included at the end of each chapter, and, after each major topic, both worked examples and graded examples on that topic for the reader are provided.

A knowledge of elementary calculus is required for Chapters 2 and 4, which contain work on continuous variables, and for certain portions of Chapters 2 and 3 the ability to sum simple finite and infinite series is necessary.

Peggy Sabine
Charles Plumpton