Core Books in Advanced Mathematics

Methods of Trigonometry

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General Editor: C. PLUMPTON, Moderator in Mathematics,
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Methods of Trigonometry

J. E. Hebborn

Chief Examiner in Advanced Level Mathematics,
University of London School Examinations
Department; Senior Lecturer in Mathematics,
Westfield College, University of London.

C. Plumpton

Moderator in Mathematics, University of
London School Examinations Department;
formerly Reader in Engineering Mathematics,
Queen Mary College, University of London.

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Contents

Preface	vii
1 Trigonometric functions	1
Some definitions; Set-square angles; Consequences of Pythagoras' theorem; Exercise 1	
2 Trigonometric identities	13
Compound-angle identities; The double-angle identities; The half-angle identities; The factor formulae; Exercise 2	
3 Trigonometric equations and their solution	20
The expression $a \cos \theta + b \sin \theta$; The equation $a \cos \theta + b \sin \theta = c$; Exercise 3	
4 Other topics	28
Approximations for small angles; Inverse trigonometric functions; The sine and cosine rules; The area of a triangle; Exercise 4	
Answers	36
Index	37

Preface

Advanced level mathematics syllabuses are once again undergoing changes in 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 modern and traditional mathematics, 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 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, 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 to supplement books they already have, so that the most recent syllabuses of, for example, the London, Cambridge, AEB and JMB 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, worked examples and numerous exercises arising from the authors’ vast experience of examining at this level. Thus, as well as using the core books in either of the above ways, they are ideal for supplementing comprehensive textbooks by providing more examples and exercises, so necessary for the preparation and revision for examinations.

In this particular book we cover the requirements of non-specialist mathematicians in basic trigonometry in accordance with the core syllabus of pure mathematics now being included by GCE Examining Boards. It also meets the requirements of the polytechnics and universities for entrants to degree courses

in mathematics-related subjects. No previous knowledge of trigonometry is assumed; that is, the basic definitions are stated and the standard results are derived, some by means of worked examples. While inevitably lacking experience, the student should try to acquire and appreciate good technique, so that more difficult problems may be tackled with confidence. Only the most elementary knowledge of coordinates and the theorem of Pythagoras have been assumed.

Confidence in using calculators which contain the trigonometric functions and their inverses is essential both at 'A' level and beyond. No reference is made to trigonometric tables in this book. The calculator is here to stay and we must use it accurately where appropriate. Plenty of GCE-type examples are provided throughout the book, both as exercises and as part of the text.

J. E. Hebborn
C. Plumpton