Cambridge University Press
978-0-521-10267-4 - Advanced Algebra
E. A. Maxwell
Frontmatter
More information

ADVANCED ALGEBRA

ADVANCED ALGEBRA

BY

E. A. MAXWELL, Ph.D.
Fellow of Queens' College
Cambridge

PART I

CAMBRIDGE
AT THE UNIVERSITY PRESS
1966

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521102674

First published 1960
Reprinted 1961, 1962, 1966
This digitally printed version 2009

A catalogue record for this publication is available from the British Library

ISBN 978-0-521-05694-6 hardback
ISBN 978-0-521-10267-4 paperback

CONTENTS

PREFACE

I am most grateful to Mr A. P. Rollett for reading the manuscript and making a number of valuable suggestions; also to two practising schoolmasters who read it on behalf of the Press and put forward some very useful comments. The Examples are taken chiefly from papers set in the University of Cambridge and by the Oxford and Cambridge Schools Examination Board; I am grateful for permission to use them, and also for help given by my son in checking answers.

The Staff of the Cambridge University Press have, as always, combined patience and efficiency in the passage from manuscript to book, and I am deeply grateful to them.

I mention here that I share the royalties with Queens' College and with Holy Trinity Church, both of Cambridge, so that I may record my gratitude for all that they have meant to me over many years.

E. A. M.

June 1959

One or two small corrections have been made during reprinting. In particular, Illustration 9 on p. 189 is now correct.

E. A. M.

May 1961

Persistent, but kindly, correspondents have drawn attention to a number of errors, particularly in answers, and I hope that corrections are now virtually complete.

E.A.M.

January 1965

Cambridge University Press
978-0-521-10267-4 - Advanced Algebra
E. A. Maxwell
Frontmatter
More information

INTRODUCTION

My aims in the preparation of this book have been two-fold: to emphasize the logical structure of algebra up to the limits, as I judge them, of the normal reader's capacity for this stage, and to develop a running technique which will enable problems to be tackled with reasonable fluency. I make no apology for the large number of routine examples—only sympathy from one who has himself worked them all. It is my firm conviction that mathematics, like music with which it is often associated, cannot yield its full thrills to those who will not endure practice.

The subject-matter is necessarily fairly standard, and ought to form a basis for most upper-school requirements below full Scholarship level, and, in places, beyond. One or two points of detail ought perhaps to be mentioned:

I believe the treatment of partial fractions to be new, particularly for quadratic factors of the denominator. The identification of the numerator (of type $Ax+B$) allows justification without recourse to polynomial theory.

It is doubtful whether the exponential and logarithmic series belong properly to algebra, especially as they are almost always included now in the calculus course. The present treatment is a variant of that in, say, my *An Analytical Calculus* and is intended to emphasize the more algebraic aspects of the subjects. I have not hestitated to use elementary calculus when necessary. I hope that the short chapter on Infinite Series will help to prepare a basis for the binomial, exponential and logarithmic series which follow.

The treatment of determinants is fairly orthodox, but I have tried to fix attention on those parts of the work which form a preparation for the important subject of 'linear algebra'.

It is my hope that the reader will be able to pass fully prepared to the next stages unencumbered with material for which he will have no further use. But this is a goal that no author dare feel confident of reaching.

