

HIGHER ALGEBRA

A SEQUEL TO

ELEMENTARY ALGEBRA FOR SCHOOLS.



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FOURTH EDITION.



MACMILLAN AND CO., LIMITED
ST MARTIN'S STREET, LONDON

1908

8-1908 1909

First printed 1887.

Second Edition with corrections 1888.

Third Edition revised and enlarged 1889.

Reprinted 1890. Fourth Edition 1891.

Reprinted 1892, 1894, 1896, 1897,

1899, 1900, 1901, 1903, 1904,

1905, 1906 (twice)

1907, 1908



9-28.8690.

PREFACE.

THE present work is intended as a sequel to our *Elementary Algebra for Schools*. The first few chapters are devoted to a fuller discussion of Ratio, Proportion, Variation, and the Progressions, which in the former work were treated in an elementary manner; and we have here introduced theorems and examples which are unsuitable for a first course of reading.

From this point the work covers ground for the most part new to the student, and enters upon subjects of special importance: these we have endeavoured to treat minutely and thoroughly, discussing both bookwork and examples with that fulness which we have always found necessary in our experience as teachers.

It has been our aim to discuss all the essential parts as completely as possible within the limits of a single volume, but in a few of the later chapters it has been impossible to find room for more than an introductory sketch; in all such cases our object has been to map out a suitable first course of reading, referring the student to special treatises for fuller information.

In the chapter on Permutations and Combinations we are much indebted to the Rev. W. A. Whitworth for permission to make use of some of the proofs given in his *Choice and Chance*. For many years we have used these proofs in our own teaching, and we are convinced that this