

MATHEMATICAL TEXTS  
FOR SCHOOLS

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# COMPLETE SCHOOL ALGEBRA

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## PREFACE

The present revision of the "Complete School Algebra" bears substantially the same relation to the revised "First Course" and "Second Course" that the first edition bore to the original texts. In the revision of each of these texts material for which there is no strong demand from teachers has been omitted, and the entire work has been rewritten in the interest of greater simplicity and directness of appeal. The collections of exercises and problems are for the most part new and contain a larger proportion of easy exercises with simple results than the first edition.

A striking feature of the revision is the inclusion of a large number of oral exercises in connection with the introduction of each new idea or operation. It is the object of these exercises to present the new concept in complete isolation from any complication of notation or technique so that the student becomes familiar with its content and bearing before he is asked to make use of it in written work. These oral exercises may well be taken up when the advance lesson is assigned, so that the pupil may be certain that he understands the idea involved in the new work before he leaves his instructor.

Another feature scarcely less important is the character and position of the examples and hints. The aim has been to help the student at the exact point where he needs it and to avoid the insertion of lengthy and difficult solutions before they can be completely understood.

The definitions and axioms have been expressed in the simplest language which is consistent with scientific accuracy. Many definitions which are usually found in elementary texts but which do not contribute to the clearness of the subject are omitted.

The first presentation of the subject of graphs has been limited to the study of the straight line and a few exercises of a commercial or scientific character. These exercises not only have a very definite human interest apart from their mathematical value but also serve to familiarize the student with the kind of graphs he will meet in his ordinary reading.

In the chapter on Functions and their Graphs the attention has been centered on the graphical representation of a function, on the graphical solution of an equation in one unknown, and on that of a system in two unknowns. A few carefully selected statistical problems, each showing some striking feature when treated graphically, have been included. The whole is designed to secure, with as little labor as possible, the maximum of illumination and interest.

In the chapters devoted to a review of first-year algebra the fact was borne constantly in mind that the material might be handled by students who had not pursued the study of algebra during the preceding year. It was consequently thought desirable to have work in equations as early as practicable. The subject of fractions, the topic usually most in need of review, has received full and careful treatment. Linear systems have been presented without the use of determinants. The needs of classes, even under almost identical conditions, differ widely, one class requiring more review on a certain topic than does another. Consequently the review material has been expanded so as to afford ample work for any class. It is not intended, however, that all the exercises and problems should be solved by any one student.

The authors are under obligations to many teachers from all parts of the country for helpful criticisms which have been of material assistance in planning and carrying forward this revision.