

**EATON'S ELEMENTARY  
ALGEBRA: DESIGNED  
FOR THE USE OF HIGH  
SCHOOLS AND ACADEMIES**

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Eaton's Elementary algebra: designed for the use of high schools and academies by William F. Bradbury

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**WILLIAM F. BRADBURY**

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*F. Caspary*  
Eaton and Bradbury's *Mathematical Series.*

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EATON'S  
ELEMENTARY ALGEBRA,

DESIGNED FOR THE  
USE OF HIGH SCHOOLS AND ACADEMIES.

BY

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TRIGONOMETRY AND SURVEYING, AND OF AN ELEMENTARY GEOMETRY.

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in the Clerk's Office of the District Court of the District of Massachusetts.

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CAJORI

## P R E F A C E .

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It was the intention of the author of Eaton's Arithmetics to add to the series an Algebra, and he had commenced the preparation of such a work. Although its completion has devolved upon another, the author, as far as practicable in a work of this character, has followed the same general plan that has made the Arithmetics so popular, and spared no labor to adapt the book to the wants of pupils commencing this branch of mathematics.

A few problems have been introduced in Section II., to awaken the pupil's interest in Algebraic operations, and thus prepare him for the more abstract principles which must be mastered before the more difficult problems can be solved. Special attention is invited to the arrangement of the equations in Elimination; to the Second Method of Completing the Square in Affected Quadratics; and to the number and variety of the examples given in the body of the work and in the closing section.

The Theory of Equations, the Explanation of Negative Results, of Zero and Infinity, and of Imaginary Quantities, are omitted, as topics not appropriate to an Elementary Algebra. It may also be better for the younger pupils to

pass over the two theorems in Art. 74, until they become more familiar with algebraic reasoning.

While the book has not been made simple by avoiding the legitimate use of the negative sign before a parenthesis or a fraction, the difficulty which is caused to beginners by the introduction of negative indices in simple division has been obviated by deferring their introduction to the section on Powers and Roots, where they are fully explained.

The utmost conciseness consistent with perspicuity has been studied throughout the work. It is hoped the book will commend itself to both teachers and pupils.

W. F. B.

CAMBRIDGE, MASS., May 17, 1868.



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# ELEMENTARY ALGEBRA.

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## SECTION I.

### DEFINITIONS.

1. **MATHEMATICS** is the science of quantity.
2. **QUANTITY** is that which can be measured; as distance, time, weight.
3. **ARITHMETIC** is the science of numbers. In Arithmetic quantities are represented by figures.
4. **ALGEBRA** is Universal Arithmetic. In Algebra quantities are represented by either letters or figures, and their relations by signs.

### NOTATION.

5. **ADDITION** is denoted by the sign  $+$ , called *plus*; thus,  $3 + 2$ , i. e. 3 plus 2, signifies that 2 is to be added to 3.
6. **SUBTRACTION** is denoted by the sign  $-$ , called *minus*; thus,  $7 - 4$ , i. e. 7 minus 4, signifies that 4 is to be subtracted from 7.
7. **MULTIPLICATION** is denoted by the sign  $\times$ ; thus,  $6 \times 5$  signifies that 6 and 5 are to be multiplied together. Between a figure and a letter, or between letters, the sign  $\times$  is generally omitted; thus,  $6ab$  is the same as  $6 \times a \times b$ . Multiplication is sometimes denoted by the period; thus,  $8.6.4$  is the same as  $8 \times 6 \times 4$ .