

Introduction to the Theory of Algebraic Equations. By LEONARD EUGENE DICKSON, Ph.D., Assistant Professor of Mathematics in the University of Chicago. New York, John Wiley and Sons, 1903. Small 8vo, v + 104 pp.

THE aim of this little volume is to furnish a very elementary introduction to the Galois theory of algebraic equations. The book is divided into eleven brief chapters bearing the following headings: Solution of the general quadratic, cubic and quartic equations; Substitutions; Substitution groups and rational functions; The general equation from the group standpoint; Algebraic introduction to Galois theory: The group of an equation; Solution by means of resolvent equations; Regular cyclic equations, abelian equations; Criterion for algebraic solvability; Metacyclic equations, Galoisian equations; An account of more technical results.

There are five sets of exercises in addition to a number of illustrative examples. These examples are an especially commendable feature, as they are carefully selected and of a sufficiently elementary character to aid the student in avoiding the many pitfalls which beset his way when he first enters upon this difficult subject. In view of the fact that the literature of this subject contains so few usable examples which serve to illustrate some of the most difficult points, such as the group of a special equation, the present lists are especially welcome.

An appendix of four pages and a complete index close the volume. The former is devoted to Gauss's proof of the fundamental theorem on symmetric functions, and to Moore's proof of the theorem that a rational, integral function of x_1, x_2, \dots, x_n with constant indeterminate coefficients cannot be equal to zero unless it is identically zero. The proofs throughout are brief and the matters are stated in a clear and definite form. Possibly the brevity of proof has sometimes been carried to an extreme, as on top of page 18. However, the principal object of an introductory course should be to lead a student to a clear comprehension of the main questions and results, and the present volume seems admirably adapted to this end.

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