

HISTORY OF THE THEORY OF NUMBERS

VOLUME III

QUADRATIC AND HIGHER FORMS

BY LEONARD EUGENE DICKSON

Professor of Mathematics in the University of Chicago

WITH A CHAPTER ON THE CLASS NUMBER

BY G. H. CRESSE

AMS CHELSEA PUBLISHING

American Mathematical Society • Providence, Rhode Island

TABLE OF CONTENTS.

CHAPTER	PAGE
I. REDUCTION AND EQUIVALENCE OF BINARY QUADRATIC FORMS, REPRESENTATION OF INTEGERS	1
II. EXPLICIT VALUES OF x, y IN $x^2 + 2y^2 \equiv a \pmod{p}$	55
III. COMPOSITION OF BINARY QUADRATIC FORMS	61
IV. ORDERS AND GENERA; THEIR COMPOSITION	80
V. IRREDUCIBLE DETERMINANTS	80
VI. NUMBER OF CLASSES OF BINARY QUADRATIC FORMS WITH INTEGRAL COEFFICIENTS ..	92
VII. BINARY QUADRATIC FORMS WHOSE COEFFICIENTS ARE COMPLEX INTEGERS OR INTEGERS OF A FIELD	104
VIII. NUMBER OF CLASSES OF BINARY QUADRATIC FORMS WITH COMPLEX INTEGRAL COEFFICIENTS	203
IX. TERNARY QUADRATIC FORMS	206
X. QUATERNARY QUADRATIC FORMS	225
XI. QUADRATIC FORMS IN n VARIABLES	234
XII. BINARY CUBIC FORMS	252
XIII. CUBIC FORMS IN THREE OR MORE VARIABLES	259
XIV. FORMS OF DEGREE $n \geq 4$	262
XV. BINARY HERMITIAN FORMS	269
XVI. HERMITIAN FORMS IN n VARIABLES AND THEIR COEFFICIENTS	279
XVII. BILINEAR FORMS, METRICS, LINEAR SUBSTITUTIONS	284
XVIII. REPRESENTATION BY POLYNOMIALS MODULO p	289
Analytic Representation of Substitutions, Polynomials Representing All Integers Modulo p	289
Polynomials Representing Only Numbers of Prescribed Nature	291
XIX. CONGRUENTIAL THEORY OF FORMS	350
Modular Invariants and Covariants	353
Reduction of Modular Forms to Canonical Types	398
Formal Modular Invariants and Covariants	399
ALPHABET INDEX	363
SYMBOL INDEX	369