DISQUISITIONES ARITHMETICAE

CARL FRIEDRICH GAUSS

translated by Arthur A. Clarke, S.J.

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Disquisitiones Arithmeticae-Carl Friedrich Gauss 1986-01

Disquisitiones Arithmeticae-Carl F. Gauss 1986-05-01

The Shaping of Arithmetic after C.F. Gauss's Disquisitiones Arithmeticae-Catherine Goldstein 2007-02-03 Since its publication, C.F. Gauss's Disquisitiones Arithmeticae (1801) has acquired an almost mythical reputation, standing as an ideal of exposition in notation, problems and methods; as a model of organisation and theory building; and as a source of mathematical inspiration. Eighteen authors - mathematicians, historians, philosophers - have collaborated in this volume to assess the impact of the Disquisitiones, in the two centuries since its publication.

Disquisitiones Arithmeticae-Frederic P. Miller 2011-02-23 Please note that the content of this book primarily consists of articles available from Wikipedia or other free sources online. The Disquisitiones Arithmeticae is a textbook of number theory written in Latin by Carl Friedrich Gauss in 1798 when Gauss was 21 and first published in 1801 when he was 24. In this book Gauss brings together results in number theory obtained by mathematicians such as Fermat, Euler, Lagrange and Legendre and adds important new results of his own. The Disquisitiones covers both elementary number theory and parts of the area of mathematics that we now call algebraic number theory. However, Gauss did not explicitly recognize the concept of a group, which is central to modern algebra, so he did not use this term. His own title for his subject was Higher Arithmetic. The Disquisitiones was the starting point for the work of other nineteenth century European mathematicians including Ernst Kummer, J. P. G. Lejeune Dirichlet and Richard Dedekind.

Disquisitiones arithmeticae-Carl Friedrich Gauss 1801

The Shaping of Arithmetic After C. F. Gauss{u2019}s Disquisitiones Arithmeticae-Catherine Goldstein 2007

Plato's Ghost-Jeremy Gray 2008-09-02 Plato's Ghost is the first book to examine the development of mathematics from 1880 to 1920 as a modernist transformation similar to those in art, literature, and music. Jeremy Gray traces the growth of mathematical modernism from its roots in problem solving and theory to its interactions with physics, philosophy, theology, psychology, and ideas about real and artificial languages. He shows how mathematics was popularized, and explains how mathematical modernism not only gave expression to the work of mathematicians and the professional image they sought to create for themselves, but how modernism also introduced deeper and ultimately unanswerable questions. Plato's Ghost evokes Yeats's lament that any claim to worldly perfection inevitably is proven wrong by the philosopher's ghost; Gray demonstrates how modernist mathematicians believed they had advanced further than anyone before them, only to make more profound mistakes. He tells for the first time the story of these ambitious and brilliant mathematicians, including Richard Dedekind, Henri Lebesgue, Henri Poincaré, and many others. He describes the lively debates surrounding novel objects, definitions, and proofs in mathematics arising from the use of naïve set theory and the revived axiomatic method--debates that spilled over into contemporary arguments in philosophy and the sciences and drove an upsurge of popular writing on mathematics. And he looks at mathematics after World War I, including the foundational crisis and mathematical Platonism. Plato's Ghost is essential reading for mathematicians and historians, and will appeal to anyone interested in the development of modern mathematics.

The Higher Arithmetic-H. Davenport 2008-10-23 The theory of numbers is generally considered to be the 'purest' branch of pure mathematics and demands exactness of thought and exposition from its devotees. It is also one of the most highly active and engaging areas of mathematics. Now into its eighth edition The Higher Arithmetic introduces the concepts and theorems of number theory in a way that does not require the reader to have an in-depth knowledge of the theory of numbers but also touches upon matters of deep mathematical significance. Since earlier editions, additional material written by J. H. Davenport has been added, on topics such as Wiles' proof of Fermat's Last Theorem, computers and number theory, and primality testing. Written to be accessible to the general reader, with only high school mathematics as prerequisite, this classic book is also ideal for undergraduate courses on number theory, and covers all the necessary material clearly and succinctly.

Number Theory Revealed: An Introduction-Andrew Granville 2019-11-12 Number Theory Revealed: An Introduction acquaints undergraduates with the "Queen of Mathematics". The text offers a fresh take on congruences, power residues, quadratic residues, primes, and Diophantine equations and presents hot topics like cryptography, factoring, and primality testing. Students are also introduced to beautiful enlightening questions like the structure of Pascal's triangle mod p p and modern twists on traditional questions like the values represented by binary quadratic forms and large solutions of equations. Each chapter includes an "elective appendix" with additional reading, projects, and references. An expanded edition, Number Theory Revealed: A Masterclass, offers a more comprehensive approach to these core topics and adds additional material in further chapters and appendices, allowing instructors to create an individualized course tailored to their own (and their students') interests.

Gauss-W. K. Bühler 2012-12-06 Procreare iucundum, sed parturire molestum. (Gauss, sec. Eisenstein) The plan of this book was first conceived eight years ago. The manuscript developed slowly through several versions until it attained its present form in 1979. It would be inappropriate to list the names of all the friends and advisors with whom I discussed my various drafts but I should like to mention the name of Mr. Gary Cornell who, besides discussing with me numerous details of the manuscript, revised it stylistically. There is much interest among mathematicians to know more about Gauss's life, and the generous help I received has certainly more to do with this than with any individual, positive or negative, aspect of my manuscript. Any mistakes, errors of judgement, or other inadequacies are, of course, the author's responsi bility. The most incisive and, in a way, easiest decisions I had to make were those of personal taste in the choice and treatment of topics. Much had to be omitted or could only be discussed in a cursory way.

Werke-Carl Friedrich Gauss 2020-04-08 Reprint of the original, first published in 1903.

A History of Abstract Algebra-Jeremy Gray 2018-09-08 This textbook provides an accessible account of the history of abstract algebra, tracing a range of topics in modern algebra and number theory back to their modest presence in the seventeenth and eighteenth centuries, and exploring the impact of ideas on the development of the subject. Beginning with Gauss's theory of numbers and Galois's ideas, the book progresses to Dedekind and Kronecker, Jordan and Klein, Steinitz, Hilbert, and Emmy Noether. Approaching mathematical topics from a historical perspective, the author explores quadratic forms, quadratic reciprocity, Fermat's Last Theorem, cyclotomy, quintic equations, Galois theory, commutative rings, abstract fields, ideal theory, invariant theory, and group theory. Readers will learn what Galois accomplished, how difficult the proofs of his theorems were, and how important Camille Jordan and Felix Klein were in the eventual acceptance of Galois's approach to the solution of equations. The book also describes the relationship between Kummer's ideal numbers and Dedekind's ideals, and discusses why Dedekind felt his solution to the divisor problem was better than Kummer's. Designed for a course in the history of modern algebra, this book is aimed at undergraduate students with an introductory background in algebra but will also appeal to researchers with a general interest in the topic. With exercises at the end of each chapter and appendices providing material difficult to find elsewhere, this book is self-contained and therefore suitable for self-study.

A Short Account of the History of Mathematics-Walter William Rouse Ball 1893

American Journal of Mathematics- 1891

A Brief History of Mathematics-Karl Fink 1903

Memorabilia Mathematica; Or, The Philomath's Quotation-book-Robert Édouard Moritz 1914

The Pell Equation-Edward Everett Whitford 1912

Quadratic Residues and Non-Residues-Steve Wright 2016-11-11 This book offers an account of the classical theory of quadratic residues and non-residues with the goal of using that theory as a lens through which to view the development of some of the fundamental methods employed in modern elementary, algebraic, and analytic number theory. The first three chapters present some basic facts and the history of quadratic residues and non-residues and discuss various proofs of the Law of Quadratic Reciprosity in depth, with an emphasis on the six proofs that Gauss published. The remaining seven chapters explore some interesting applications of the Law of Quadratic Reciprocity, prove some results concerning the distribution and arithmetic structure of quadratic residues and non-residues, provide a detailed proof of Dirichlet's Class-Number Formula, and discuss the question of whether quadratic residues are randomly distributed. The text is a valuable resource for graduate and advanced undergraduate students as well as for mathematicians interested in number theory.

Catalogue of the Library of the Royal Astronomical Society: Compiled to June 1884-Royal Astronomical Society 1886

The Encyclopaedia Britannica- 1910

Disquisitiones arithmeticae auctore d. Carolo Friderico Gauss-Carl Friedrich Gauss 1801

Number Theory Revealed: A Masterclass-Andrew Granville 2020-09-23 Number Theory Revealed: A Masterclass acquaints enthusiastic students with the "Queen of Mathematics". The text offers a fresh take on congruences, power residues, quadratic residues, primes, and Diophantine equations and presents hot topics like cryptography, factoring, and primality testing. Students are also introduced to beautiful enlightening questions like the structure of Pascal's triangle mod p and modern twists on traditional questions like the values represented by binary quadratic forms, the anatomy of integers, and elliptic curves. This Masterclass edition contains many additional chapters and appendices not found in Number Theory Revealed: An Introduction, highlighting beautiful developments and inspiring other subjects in mathematics (like algebra). This allows instructors to tailor a course suited to their own (and their students') interests. There are new yet accessible topics like the curvature of circles in a tiling of a circle by circles, the latest discoveries on gaps between primes, a new proof of Mordell's Theorem for congruent elliptic curves, and a discussion of the abc-conjecture including its proof for polynomials. About the Author: Andrew Granville is the Canada Research Chair in Number Theory at the University of Montreal and professor of mathematics at University College London. He has won several international writing prizes for exposition in mathematics, including the 2008 Chauvenet Prize and the 2019 Halmos-Ford Prize, and is the author of Prime Suspects (Princeton University Press, 2019), a beautifully illustrated graphic novel murder mystery that explores surprising connections between the anatomies of integers and of permutations.

Little Songs of Long Ago-Alfred Moffat 1912 An illustrated collection of traditional nursery rhymes with accompanying music.

Lectures on Number Theory-Peter Gustav Lejeune Dirichlet 1999 Lectures on Number Theory is the first of its kind on the subject matter. It covers most of the topics that are standard in a modern first course on number theory, but also includes Dirichlet's famous results on class numbers and primes in arithmetic progressions.

Theory of the Combination of Observations Least Subject to Errors-Carl Friedrich Gauss 1995-01-01 English translation of Gauss' two memoirs which contain his final, definitive treatment of least squares and wealth of additional material.

Werke I. Disquisitiones Arithmeticae-Carl Friedrich Gauss 1870

Acta Arithmetica- 2006

Leonard Eugene Dickson and His Work in the Theory of Algebras-Della Dumbaugh Fenster 1994

The Genesis of the Abstract Group Concept-Hans Wussing 2007-01-01 "It is a pleasure to turn to Wussing's book, a sound presentation of history," declared the Bulletin of the American Mathematical Society. The author, Director of the Institute for the History of Medicine and Science at Leipzig University, traces the axiomatic formulation of the abstract notion of group. 1984 edition.

A Classical Introduction to Modern Number Theory-K. Ireland 2013-03-09 This book is a revised and greatly expanded version of our book Elements of Number Theory published in 1972. As with the first book the primary audience we envisage consists of upper level undergraduate mathematics majors and graduate students. We have assumed some familiarity with the material in a standard undergraduate course in abstract algebra. A large portion of Chapters 1-11 can be read even without such background with the aid of a small amount of supplementary reading. The later chapters assume some knowledge of Galois theory, and in Chapters 16 and 18 an acquaintance with the theory of complex variables is necessary. Number theory is an ancient subject and its content is vast. Any intro ductory book must, of necessity, make a very limited selection from the fascinat ing array of possible topics. Our focus is on topics which point in the direction of algebraic number theory and arithmetic algebraic geometry. By a careful selection of subject matter we have found it possible to exposit some rather advanced material without requiring very much in the way oftechnical background. Most of this material is classical in the sense that is was dis covered during the nineteenth century and earlier, but it is also modern because it is intimately related to important research going on at the present time.

General Investigations of Curved Surfaces of 1827 and 1825-Carl Friedrich Gauss 1902

Proceedings of the 2nd Gauss Symposium-M. Behara 1995 The series is aimed specifically at publishing peer reviewed reviews and contributions presented at workshops and conferences. Each volume is associated with a particular conference, symposium or workshop. These events cover various topics within pure and applied mathematics and provide up-to-date coverage of new developments, methods and applications.

Higher Arithmetic-Harold M. Edwards 2008 Although number theorists have sometimes shunned and even disparaged computation in the past, today's applications of number theory to cryptography and computer security demand vast arithmetical computations. These demands have shifted the focus of studies in number theory and have changed attitudes toward computation itself. The important new applications have attracted a great many students to number theory, but the best reason for studying the subject remains what it was when Gauss published his classic Disquisitiones Arithmeticae in 1801: Number theory is the equal of Euclidean geometry--some would say it is superior to Euclidean geometry--as a model of pure, logical, deductive thinking. An arithmetical computation, after all, is the purest form of deductive argument. Higher Arithmetic explains number theory in a way that gives deductive reasoning, including algorithms and computations, the central role. Hands-on experience with the application of algorithms to computational examples enables students to master the fundamental ideas of basic number theory. This is a worthwhile goal for any student of mathematics and an essential one for students interested in the modern applications of number theory. Harold M. Edwards is Emeritus Professor of Mathematics at New York University. His previous books are Advanced Calculus (1969, 1980, 1993), Riemann's Zeta Function (1974, 2001), Fermat's Last Theorem (1977), Galois Theory (1984), Divisor Theory (1990), Linear Algebra (1995), and Essays in Constructive Mathematics (2005). For his masterly mathematical exposition he was awarded a Steele Prize as well as a Whiteman Prize by the American Mathematical Society.

Bulletin of the American Mathematical Society- 2000

Crux Mathematicorum- 1975

Carl Friedrich Gauss-Guy Waldo Dunnington 1955

History of Binary and Other Nondecimal Numeration-Anton Glaser 1971

The History of Mathematics-David M. Burton 2007 This text is designed for the junior/senior mathematics major who intends to teach mathematics in high school or college. It concentrates on the history of those topics typically covered in an undergraduate curriculum or in elementary schools or high schools. At least one year of calculus is a prerequisite for this course. This book contains enough material for a 2 semester course but it is flexible enough to be used in the more common 1 semester course.

A Course in Arithmetic-J-P. Serre 2012-12-06 This book is divided into two parts. The first one is purely algebraic. Its objective is the classification of quadratic forms over the field of rational numbers (Hasse-Minkowski theorem). It is achieved in Chapter IV. The first three chapters contain some preliminaries: quadratic reciprocity law, p-adic fields, Hilbert symbols. Chapter V applies the preceding results to integral quadratic forms of discriminant ± I. These forms occur in various questions: modular functions, differential topology, finite groups. The second part (Chapters VI and VIII) uses "analytic" methods (holomor phic functions). Chapter VI gives the proof of the "theorem on arithmetic progressions" due to Dirichlet; this theorem is used at a critical point in the first part (Chapter Ill, no. 2.2). Chapter VII deals with modular forms, and in particular, with theta functions. Some of the quadratic forms of Chapter V reappear here. The two parts correspond to lectures given in 1962 and 1964 to second year students at the Ecole Normale Superieure. A redaction of these lectures in the form of duplicated notes, was made by J.-J. Sansuc (Chapters I-IV) and J.-P. Ramis and G. Ruget (Chapters VI-VII). They were very useful to me; I extend here my gratitude to their authors.

Discovery- 1955

