

Théorie des nombres

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O. MELNIKOV, V. SARVANOV, R. TYSHKEVICH, V. YEMELICHEV and I. ZVEROVICH, (Editors). — **Exercises in graph theory**. — Kluwer texts in the mathematical sciences, vol. 19. — Un vol. relié, 17×25, de VIII, 354 p. — ISBN 0-7923-4906-7. — Prix: Dfl. 265.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This volume covers the principal branches of graph theory in more than a thousand exercises of varying complexity. Each section starts with the main definitions and a brief theoretical discussion, which will serve as a reminder when solving the problems. Answers and hints are supplied separately. Topics include trees, independence and coverings, matching, tours, planarity, colourings, degree sequences, connectivity, digraphs and hypergraphs.

W.T. TUTTE. — **Graph theory as I have known it**. — Oxford lecture series in mathematics and its applications, vol. 11. — Oxford science publications. — Un vol. relié, 16×24, de 156 p. — ISBN 0-19-850251-6. — Prix: £27.50. — Clarendon Press, Oxford, 1998.

The book provides a unique and unusual introduction to graph theory by one of the founding fathers of the subject. The opening chapter tells of the first problems worked on by the author and his colleagues. Their interest in graph theory was aroused by a problem in a mathematical puzzle book. Beginning with an account of their work on the construction of perfect squares and rectangles, the subsequent chapters describe the development of the author's ideas: the disproof of Tait's conjecture on Hamiltonian circuits, "factorizing" graphs, algebra in graph theory, symmetry in graphs, graphs on spheres, and chromatic eigenvalues.

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G.E. BERGUM, A.N. PHILIPPOU, A.F. HORADAM, (Editors). — **Applications of Fibonacci numbers, vol. 7**. — Proceedings of the Seventh International Research Conference on Fibonacci Numbers and their Applications, Technische Universität, Graz, Austria, July 15-19, 1996. — Un vol. relié, 17×25, de xxxvi, 484 p. — ISBN 0-7923-5022-7. — Prix: Dfl. 395.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This volume includes a carefully refereed collection of papers dealing with number patterns, linear recurrences and the application of the Fibonacci numbers to probability, statistics, differential equations, cryptography, computer science and elementary number theory. This volume provides a platform for recent discoveries and encourages further research. It is a continuation of the work presented in the previously published proceedings of the earlier conferences, and shows the growing interest in, and importance of, the pure and applied aspects of Fibonacci numbers in many different areas of science.

Bruce C. BERNDT, Ronald J. EVANS, Kenneth S. WILLIAMS. — **Gauss and Jacobi sums**. — Canadian Mathematical Society series of monographs and advanced texts, vol. 21. — A Wiley interscience publication. — Un vol. relié, 16×24,5, de xi, 583 p. — ISBN 0-471-12807-4. — Prix: £45.50. — John Wiley & Sons, New York, 1998.

The theme, Gauss and Jacobi sums, could be approached in a variety of ways. In this book the focus is on examining basic properties of Gauss and Jacobi sums, providing systematic and explicit evaluations of these sums, and providing applications. This book develops the explicit evaluation of Gauss and Jacobi sums, and the application of these evaluations to the determination of other character sums, such as Jacobsthal, Eisenstein and Brewer sums, the determination of the number of solutions of congruences and residual difference sets, reciprocity laws. The main prerequisites for the book are knowledge of undergraduate modern algebra (including finite fields) and basic material in elementary and algebraic number theory.

Richard A. DUNLAP. — **The golden ratio and Fibonacci numbers.** — Un vol. relié, 16×22,5, de VII, 162 p. — ISBN 981-02-3264-0. — Prix: £23.00. — World Scientific, Singapore, 1997.

From the preface: The golden ratio and Fibonacci numbers have numerous applications [...]. Although much has been written about these numbers, the present book will hopefully fill the gap between those sources which take a philosophical or even mystical approach and the formal mathematical texts. I have tried to stress not only fundamental properties of these numbers but their application to diverse fields of mathematics, computer science, physics and biology. I believe that this is the first book to take this approach since the application of models involving the golden ratio to the description of incommensurate structures and quasicrystals in the 1970's and 1980's.

Kálmán GYÖRY, Attila PETHŐ, Vera T. SÓS, (Editors). — **Number theory: diophantine, computational and algebraic aspects.** — Proceedings of the International Conference held in Eger, Hungary, July 29-August 2, 1996. — Un vol. relié, 18×24,5, de XVII, 595 p. — ISBN 3-11-015364-5. — Prix: DM 348.00. — Walter de Gruyter, Berlin, 1998.

These proceedings contain 41 selected and refereed research and survey articles based on lectures delivered at the 1996 International Conference on Number Theory held in Eger, Hungary. A significant part of contributions involve various aspects of Diophantine equations ranging from general effective finiteness theorems to efficient algorithms and numerical results. Other topics covered are Diophantine approximations, transcendence theory and in particular Baker's method concerning linear forms in logarithms, the arithmetic theory of elliptic and algebraic curves, the arithmetic of polynomials and algebraic number fields, the geometry of numbers, linear recurrences and digital expansions.

Glyn HARMAN. — **Metric number theory.** — London Mathematical Society monographs, New series, vol. 18. — Oxford science publications. — Un vol. relié, 16×24, de XVIII, 297 p. — ISBN 0-19-850083-1. — Prix: £75.00. — Clarendon Press, Oxford, 1998.

This book deals with the number-theoretic properties of almost all real numbers. It brings together many different types of result never covered within the same volume before, thus showing interactions and common ideas between different branches of the subject. It provides an indispensable compendium of basic results, important theorems and open problems. *Contents:* Introduction. — Normal numbers. — Diophantine approximation. — GCD sums with applications. — Schmidt's method. — Uniform distribution. — Diophantine approximation with restricted numerator and denominator. — Non-integer sequences. — The integer parts of sequences. — Diophantine approximation on manifolds. — Hausdorff dimension of exceptional sets.

Norbert KLINGEN. — **Arithmetical similarities: prime decomposition and finite group theory.** — Oxford mathematical monographs. — Oxford science publications. — Un vol. relié, 16×24, de IX, 275 p. — ISBN 0-19-853598-8. — Prix: £55.00. — Oxford University Press, Oxford, 1998.

This book deals with fundamental number-theoretic questions and their interplay with finite group theory. It reports on the great progress achieved since 1970 through the joint effort of researchers in both areas. The book allows access to the results achieved so far and aims to increase the scientific exchange between number theory and group theory. *Contents:* Introduction. — Prime decomposition. — Kronecker equivalence. — Arithmetical equivalence. — Arithmetical homomorphisms. — Kroneckarian fields. — Variations.

Eli MAOR. — ***e: the story of a number***. — Un vol. broché, 15,5×23,5, de xiv, 227 p. — ISBN 0-691-05854-7. — Prix: US\$ 14.95. — Princeton University Press, Princeton, 1998.

The interest earned on a bank account, the arrangement of seeds in a sunflower, and the shape of the Gateway Arch in St. Louis are all intimately connected with the mysterious number e . In this informal and engaging history, Eli Maor portrays the curious characters and the elegant mathematics that lie behind the number. Designed for a reader with only a modest background in mathematics, this biography of e brings out that number's central importance in mathematics and illuminates a golden era in the age of science.

Richard A. MOLLIN. — **Fundamental number theory with applications**. — Discrete mathematics and its applications. — Un vol. relié, 16×24, de xii, 439 p. — ISBN 0-8493-3987-1. — Prix: DM 135.00. — CRC Press, Boca Raton, Florida, distributed by Springer-Verlag, Berlin, 1998.

This title combines elementary number theory with algebraic number theory and applications such as those found in cryptology. Beginning with arithmetic of the rational integers and proceeding to an introduction of algebraic number theory via quadratic orders, this text reveals intriguing new applications of number theory. The text provides all of the material essential for an introduction to the fundamentals of number theory: presentation of applications to computer science and algebraic number theory via quadratics, applications to cryptography, solutions to odd-numbered problems, new factoring and primality testing algorithms.

Corps et polynômes

V.V. ISHKHANOV, B.B. LUR'E, D.K. FADDEEV. — **The embedding problem in Galois theory**. — Translations of mathematical monographs, vol. 165. — Un vol. relié, 18,5×26, de xi, 182 p. — ISBN 0-8218-4592-6. — Prix: £65.00. — American Mathematical Society, Providence R.I., distributed by Oxford University Press, Oxford, 1998.

Embedding theory was a common topic of Faddeev's lecture courses at St. Petersburg University. This book is based on these lectures and contains the main results on the embedding problem, which belong for the most part to the schools of Faddeev and Shafarevich. Chapter 1: Preliminary information about the embedding problem. — Chapter 2: The compatibility condition. — Chapter 3: The embedding problem with Abelian kernel. — Chapter 4: The embedding problem for local fields. — Chapter 5: The embedding problem with non-Abelian kernel for algebraic number fields.

Géométrie algébrique

Robert BIX. — **Conics and cubics: a concrete introduction to algebraic curves**. — Undergraduate texts in mathematics. — Un vol. relié, 16×24, de x, 289 p. — ISBN 0-387-98401-1. — Prix: SFr. 89.50. — Springer, New York, 1998.

Conics and cubics is an accessible introduction to algebraic curves. Its focus on curves of degree at most three keeps results tangible and proofs transparent. Theorems follow naturally from high school algebra and two key ideas, homogeneous coordinates and intersection multiplicities. By classifying irreducible cubics over the real numbers and proving that their points form Abelian groups, the book gives readers easy access to the study of elliptic curves. It includes a simple proof of Bézout's theorem on the number of intersections of two curves.