S. Barry COOPER, John K. TRUSS, (Editors). — **Sets and proofs.** — Invited papers from Logic Colloquium '97 - European Meeting of the Association for Symbolic Logic, Leeds, July 1997. — London Mathematical Society lecture note series, vol. 258. — Un vol. broché, 15,5×23, de IX, 436 p. — ISBN 0-521-63549-7. — Prix: £29.95. — Cambridge University Press, Cambridge, 1999.

From the preface: "Together, we hope that *Sets and Proofs,* and *Models and Computability* will provide readers with a comprehensive guide to the current state of mathematical logic, and while not pretending to the definitiveness of a handbook, perhaps communicating more of the excitement of a subject in flight. All the authors are leaders in their fields, some articles pushing forward the technical boundaries of the subject, others providing readable and authoritative overviews of particular important topics... a number of papers can be expected to become classics, essential to any good library (individual or institutional)."

Paul TAYLOR. — **Practical foundations of mathematics.** — Cambridge studies in advanced mathematics, vol. 59. — Un vol. relié, 16×23,5, de XI, 572 p. — ISBN 0-521-63107-6. — Prix: £50.00. — Cambridge University Press, Cambridge, 1999.

This book collects the methods of construction of the objects of twentieth century mathematics. Although it is mainly concerned with a framework essentially equivalent to intuitionistic ZF, the book looks forward to more subtle bases in categorical type theory and the machine representation of mathematics. Each idea is illustrated by wide-ranging examples, and followed critically along its natural path, transcending disciplinary boundaries between universal algebra, type theory, category theory, set theory, sheaf theory, topology and programming.

Analyse combinatoire

Andreas BRANDSTÄDT, Van Bang LE, Jeremy P. SPINRAD. — **Graph classes: a survey.** — SIAM monographs on discrete mathematics and applications. — Un vol. broché, 18×25,5, de XI, 304 p. — ISBN 0-89871-432-X. — Prix: US$54.40. — Society for Industrial and Applied Mathematics, Philadelphia, 1999.

This well-organized reference is a definitive encyclopedia for the literature on graph classes. It contains a survey of more than 200 classes of graphs, organized by types of properties used to define and characterize the classes, citing key theorems and literature references for each. The authors state results without proof, providing readers with easy access to far more key theorems than are commonly found in other mathematical texts. Interconnections between graph classes are also provided to make the book useful to a variety of readers.

Fan CHUNG, Ron GRAHAM. — **Erdős on graphs: his legacy of unsolved problems.** — Un vol. broché, 19×23,5, de XIII, 142 p. — ISBN 1-56881-111-X. — Prix: US$25.00. — A.K. Peters, Natick, Massachussets, 1999.

This book is a tribute to Paul Erdős, the wandering mathematician once described as "the prince of problem solvers and the absolute monarch of problem posers". It examines - within the context of his unique personality and lifestyle - the legacy of open problems he left to the world of mathematics after his death in 1996. By cataloguing the unsolved problems of Erdős in a comprehensive and well-documented volume, the authors hope to continue the work of an unusual and special man who fundamentally influenced the field of mathematics.

Charles J. COLBOURN, Alexander ROSA. — **Triple systems.** — Oxford mathematical monographs. — Un vol. relié, 16×24, de XVI, 560 p. — ISBN 0-19-853576-7. — Prix: £80.00. — Clarendon Press, Oxford, 1999.

Chapter 0 provides an historical background, while Chapters 1, 2, and 3 detail the central material on constructions and existence that is used throughout the book. Chapters 4-8 describe topics which are principally concerned with triple systems themselves: isomorphism, enumeration, subsystems, and automorphisms. Chapters 9-23 treat a number of challenging problems on triple systems in some detail. Often these problems are motivated by questions in related disciplines, and often the techniques borrow heavily from other disciplines. Chapters 24 and 25 provide a guide to two related classes of triple systems in which the triples contain ordered pairs. A comprehensive bibliography on triple systems is provided.

Fred C. HOLROYD, Kathleen A.S. QUINN, Chris ROWLEY, Bridget S. WEBB, (Editors). — **Combinatorial designs and their applications.** — Chapman & Hall/CRC Research notes in mathematics, vol. 403. — Un vol. broché, 15,5×23,5, de VII, 152 p. — ISBN 0-8493-0659-0. — Prix: US$69.95. — Chapman & Hall/CRC, Boca Raton, 1999.

This selection of papers arose out of a Conference on Combinatorial Design Theory organized by members of the Department of Pure Mathematics at the Open University. The papers cover recent developments in seven different areas of design theory and its applications, with the emphasis on non-geometrical topics. The areas covered are all of much current interest, and include statistical design theory, tournaments, difference sets, configurations in designs, infinite designs, linear codes and applications of designs to cryptography. The text will serve as a useful overview of the non-geometrical aspects of design theory, and should be of interest to research mathematicians or anyone with an interest in combinatorial designs.

Donald L. KREHER, Douglas R. STINSON. — **Combinatorial algorithms: generation, enumeration, and search.** — CRC Press series on discrete mathematics and its applications. — Un vol. relié, 16,5×24,5, de 329 p. — ISBN 0-8493-3988-X. — Prix: US$74.95. — CRC Press, Boca Raton, 1999, distributed by Springer, Berlin.

This textbook thoroughly outlines combinatorial algorithms for generation, enumeration, and search. Topics include backtracking and heuristic search methods, applied to various combinatorial structures, such as: combinatorics, permutations, graphs, designs. Many classical areas are covered as well as new research topics not included in most existing texts, such as: group algorithms, graph isomorphism, hill-climbing, heuristic search algorithms. This work serves as a textbook for a modern course in combinatorial algorithms, providing a unified and focused collection of recent topics of interest in the area.

J.D. LAMB, D.A. PREECE, (Editors). — **Surveys in combinatorics, 1999.** — London Mathematical Society lecture note series, vol. 267. — Un vol. broché, 15,5×23, de VII, 298 p. — ISBN 0-521-65376-2. — Prix: £24.95. — Cambridge University Press, Cambridge, 1999.

The British Combinatorial Conference is one of the most well known meetings for combinatorialists. This volume collects the invited talks from the 1999 conference held at the University of Kent and together these span a broad range of combinatorial topics. The nine talks are from: S. Ball, J. Dinitz, M. Dyer, K. Metsch, J. Pach, R. Thomas, C. Thomassen, N. Wormald, and a special contribution from W.T. Tutte. All researchers into combinatorics will find that this volume is an outstanding and up-to-date resource.

L. Lovász, A. Gyárfás, G. Katona, A. Recski, L. Székely, (Editors). — **Graph theory and combinatorial biology.** — Bolyai Society mathematical studies, vol. 7. — Un vol. relié, 17,5×24,5, de 413 p. — ISBN 963-8022-90-6. — János Bolyai Mathematical Society, Budapest, 1999.

Graph theory: R. Faudree: Forbidden subgraphs, closure and Hamiltonian properties - recent results. — H. van der Holst, L. Lovász, A. Schrijver: The Colin de Verdière graph parameter. — A.V. Kostochka, M. Stiebitz: Exess in colour-critical graphs. — J. Kratochvíl, J. Nešetřil, M. Rosenfeld: Graph designs, Hadamard matrices and geometric configurations. — M. Molloy, B. Reed: Graph colouring via the probabilistic method. — *Extremal sets:* S.L. Bezrukov: Edge isoperimetric problems on graphs. — K. Engel, U. Leck: Optimal antichains and ideals in Macaulay posets. — J.R. Griggs: Database security and the distribution of subset sums in $\mathbf{R}^m$. — *Combinatorial optimization:* K. Murota: Discrete convex analysis - exposition on conjugacy and duality. — J. Oxley: Unavoidable minors in graphs and matroids. — *Combinatorics, molecules, and biology:* A. von Haeseler: Model based phylogenetic inference. — P.G. Mezey: Combinatorial aspects of biomolecular shape analysis. — F.S. Roberts: Competition graphs and phylogeny graphs. — T. Warnow: Some combinatorial optimization problems in phylogenetics.

Terry A. McKee, F.R. McMorris. —**Topics in intersection graph theory.** — SIAM monographs on discrete mathematics and applications. — Un vol. broché, 18×25, de vIII, 205 p. — ISBN 0-89871-430-3. — Prix: US$55.00. — Society for Industrial and Applied Mathematics, Philadelphia, 1999.

Finally there is a book that presents real applications of graph theory in a unified format. This book is the only source for an extended, concentrated focus on the theory and techniques common to various types of intersection graphs. It is a concise treatment of the aspects of intersection graphs that interconnect many standard concepts and form the foundation of a surprising array of applications to biology, computing, psychology, matrices, and statistics. The authors emphasize the underlying tools and techniques and demonstrate how this approach constitutes a definite theory within graph theory. Some of the applications are not widely known or available in the graph theoretic literature and are presented here for the first time. The book also includes a detailed literature guide for many specialized and related areas, a current bibliography, and more than 100 exercises.

Kenneth H. Rosen, John G. Michaels, Jonathan L. Gross, Jerrold W. Grossman, Douglas R. Shier, (Editors). — **Handbook of discrete and combinatorial mathematics.** — Un vol. relié, 18,5×26, de 1232 p. — ISBN 0-8493-0149-1. — Prix: US$99.95. — CRC Press, Boca Raton, 2000, distributed by Springer, Berlin.

This book presents a comprehensive collection of ready reference material for all of the important areas of discrete mathematics, including those essential to its applications in computer science and engineering. Its topics include: logic and foundations, counting, number theory, abstract and linear algebra, discrete probability, graph theory, networks and optimization, cryptography and coding, combinatorial designs, computational geometry, theoretical computer science. The handbook presents material in a simple, uniform way, and emphasizes what is useful and practical. Key elements of the text include extensive glossaries of important terms, lists of important theorems and formulas, numerous examples that illustrate terms and concepts, helpful descriptions of algorithms, summary tables, links to web pages and pointers to printed resources.

Kar-Ping SHUM, Earl J. TAFT, Zhe-Xian WAN, (Editors). — **Algebras and combinatorics.** — International Congress, ICAC'97, Hong Kong. — Un vol. broché, 15,5×23,5, de XX, 527 p. — ISBN 981-4012-31-8. — Prix: DM 139.00. — Springer, Singapore, 1999.

From the contents: Semiretracts and the intersection of retracts (J.A. Anderson). — Some inequalities for linear extensions of posets and ideals (T. Bier). — Gröbner-Shirshov bases for relations of a Lie algebra and its enveloping algebra (L. Bokut & P. Malcolmson). — Constructing tree lattices (L.J. Carbone). — Regular-solid varieties of commutative and idempotent groupoids (K. Denecke & P. Jampachon). — l_1-embeddable bifaced polyhedra (M. Deza & V. Grishukhin). — Nonstandard representation of the Malcev clone of a strong variety (H.J. Hoehnke). — On rings with inverse adjoint semigroups (A.V. Kelarev). — On Hamilton cycles in Cayley graphs of order pqr (Li Dengxin). — Implicative identities in groups (B.H. Neumann). — Isomorphism theorem, embedding theorem and replacement techniques for primitive rings (K.P. Shum, Xu Yonghua). — On morphisms between partial algebras (H.J. Vogel). — Geometry of matrices revisited (Zhe-Xian Wan). — Semiperfect coalgebras over rings (R. Wisbauer). — ... and other papers.

Manfred STERN. — **Semimodular lattices: theory and applications.** — Encyclopedia of mathematics and its applications, vol. 73. — Un vol. relié, 16×24, de XIV, 370 p. — ISBN 0-521-46105-7. — Prix: £50.00. — Cambridge University Press, Cambridge, 1999.

In this book, the author uses successive generalizations of distributive and modular lattices to outline the development of semimodular lattices from Boolean algebras. He focuses on the theory of semimodularity, its many ramifications, and its applications in discrete mathematics, combinatorics, and algebra. The author surveys and analyzes Garrett Birkhoff's concept of semimodularity and the various related concepts in lattice theory, and he presents theoretical results as well as applications in discrete mathematics, group theory, and universal algebra. Special emphasis is given to the combinatorial aspects of finite semimodular lattices. The book also deals with lattices that are "close" to semimodularity or can be combined with semimodularity, for example, supersolvable, admissible, consistent, strong, and balanced lattices.

Théorie des nombres

Joseph B. DENCE, Thomas P. DENCE. — **Elements of the theory of numbers.** — Un vol. relié, 16×23,5, de XVII, 517 p. — ISBN 0-12-209130-2. — Prix: US$59.95. — Academic Press, San Diego, 1999.

This book offers a wealth of topics in two parts. Part I consists of fundamental or core material. It includes primes, congruences, primitive roots, residues, and multiplicative functions. Part II is a collection of more specialized topics, such as a brief look at number fields, recurrence relations, and additive number theory. Throughout the text, the authors offer historical references and introduce topics in their historical context. Over 900 exercises are included.

Jody ESMONDE, M. Ram MURTY. — **Problems in algebraic number theory.** — Graduate texts in mathematics, vol. 190. — Un vol. relié, 16,5×24, de XIV, 314 p. — ISBN 0-387-98617-0. — Prix: DM 98.00. — Springer, New York, 1999.

This book is a collection of about 500 problems in algebraic number theory, all systematically arranged to reveal ideas and concepts in the evolution of the subject. While some problems are easy and straight-forward, others are more difficult. The text is suitable for a first course in algebraic number theory with minimal supervision by the instructor. The exposition facilitates