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J. S. R. CHISHOLM. — **Vectors in three-dimensional space.** — Un vol. relié, 16×24 , de XII, 293 p. — Prix: £15.00. — Cambridge university press, Cambridge/London/New York/Melbourne, 1978.

Linear spaces and displacements: Introduction. Scalar multiplication of vectors. Addition and subtraction of vectors. Displacements in Euclidean space. Geometrical applications. — *Scalar products and components*: Scalar products. Linear dependence and dimension. Components of a vector. Geometrical applications. Coordinate systems. — *Other products of vectors*: The vector product of two vectors. The distributive law for vector products; components. Products of more than two vectors. Further geometry of planes and lines. Vector equations. Spherical trigonometry. — *Transformations of vectors*: Vectors and matrices. Determinants: inverse of a square matrix. Rotations and reflections in a plane. Rotations and reflections in 3-space. Vector products and axial vectors. Tensors in 3-space. General linear transformations. — *Curves and surfaces; vector calculus*: Definition of curves and surfaces. Differentiation of vectors; moving axes. Differential geometry of curves. Surface integrals. Volume integrals. Properties of Jacobians. — *Vector analysis*: Scalar and vector fields. Divergence of a vector field. Gradient of a scalar field; conservative fields. Curl of a vector field; Stoke's theorem. Field operators; the Laplacian. — *Appendix A*: Some properties of functions of two variables. — *Appendix B*: Proof of Stokes' theorem.

Heinz LÜNEBURG. — **Vorlesungen über Zahlentheorie.** Elemente der Mathematik vom höheren Standpunkt aus, Band 8. — Un vol. broché, $14,5 \times 23$, de 107 p. — Prix: Fr. 28.00. — Birkhäuser Verlag, Basel/Stuttgart, 1978.

Die Algorithmen von Euklid und Berlekamp. Der Satz von der eindeutigen Primfaktorzerlegung. $\mathbb{Z}$ ist Hauptidealring. Ein Satz von Kaplansky. Das Sieb des Eratosthenes. Quadrattafeln. Der chinesische Restsatz. Teilbarkeitskriterien. Rationale Zahlen. Das Gaußsche Lemma. Quadratische Zahlkörper. Der euklidische Algorithmus. Der Ring der ganzen Gaußschen Zahlen. Die Einheitengruppe von A_d für $d > 0$. Kettenbrüche. Zwei Beispiele. Die modulare Gruppe als Operatorgruppe auf der Menge der Irrationalzahlen. Reelle Wurzeln quadratischer Gleichungen. Die Berechnung der Fundamentaleinheit. Das quadratische Reziprozitätsgesetz. Arithmetik in A_d . Die Berechnung der Klassenzahl von A_d .

Geometric applications of homotopy theory I. Proceedings, Evanston 1977. — Lecture notes in mathematics, vol. 657. — Un vol. broché, 17×25 , de VII, 459 p. — Prix: DM 39.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

25 exposés par: J. C. Becker, R. E. Schultz. — T. Bier, N. Ray. — W. Browder. — G. Carlsson, R. J. Milgram. — F. R. Cohen, L. R. Taylor. — G. Cooke, J. R. Harper. —

P. J. Eccles. — M. Feshbach. — Z. Fiedorowicz. — H. Glover, B. Homer. — H. Glover, B. Homer. — D. C. Gonçalves. — D. H. Gottlieb. — D. Handel. — J. Hubbuck. — J. Kaminker, C. Schochet. — I. Madsen. — C. A. McGibbon. — R. Oliver, T. Petrie. — F. Quinn. — F. Raymond, D. Wigner. — R. Rigdon, B. Williams, — J. Roitberg.

Geometric applications of homotopy theory II. — Proceedings, Evanston 1977. — Lecture notes in mathematics, vol. 658. — Un vol. broché, 17×25 , de viii, 487 p. — Prix: DM 39.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

23 exposés par: J. F. Adams. — M. G. Barratt. — M. Bendersky, E. B. Curtis. — J. M. Boardman. — A. K. Bousfield, E. M. Friedlander. — R. Bruner. — D. M. Davis, M. E. Mahowald. — W. G. Dwyer. — V. Giambolvo. — V. K. A. M. Gugenheim. — C. H. Hanks. — D. S. Kahn. — W. Komornicki. — A. Liulevicius. — M. Mahowald. — J. P. May. — M. L. Michelsohn. — H. R. Miller, S. B. Priddy. — J. Morava. — D. C. Ravenel. — M. C. Tangora.

Andrew M. BRUCKNER. — **Differentiation of real functions.** — Lecture notes in mathematics, vol. 659. — Un vol. broché, 17×25 , de x, 247 p. — Prix: DM 27.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

Preliminaries. — Darboux functions. — Darboux functions in the first class of Baire. — Continuity and approximate continuity of derivatives. — The extreme derivatives of a function. — Reconstruction of the primitive. — The Zahorski classes. — The problem of characterizing derivatives. — Derivatives a.e. and generalizations. — Transformations via homeomorphisms. — Generalized derivatives. — Monotonicity. — Stationary and determining sets. — Behavior of typical continuous functions. — Miscellaneous topics.

P. T. JOHNSTONE, R. PARE, R. D. ROSEBRUGH, D. SCHUMACHER, R. J. WOOD, G. C. WRAITH. — **Indexed categories and their applications.** — Edited by P. T. Johnstone and R. Paré. — Lecture notes in mathematics, vol. 661. — Un vol. broché, 17×25 , de vii, 260 p. — Prix: DM 27.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

R. Paré and D. Schumacher: "Abstract families and the adjoint functor theorems": Introduction. Abstract families. Smallness. Limits. The adjoint functor theorems. Applications. — *R. J. Wood*: "*V*-indexed categories". — *P. Johnstone and G. Wraith*: "Algebraic theories in toposes": Internal categories and profunctors. Natural number objects. Recursion for profunctors. The object classifier. Finitary algebraic theories. Many-sorted theories. Finitary and infinitary theories. — *R. D. Rosebrugh*: "Coequalizers in algebras for an internal type".

Ethan AKIN. — **The metric theory of Banach manifolds.** — Lecture notes in mathematics, vol. 662. — Un vol. broché, 17×25 , de xix, 306 p. — Prix: DM 29.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Introduction. — Atlases. — Function spaces. — Metric structures. — Manifolds of mappings. — Uniform and Hölder continuity. — Immersions and submersions. — Grassmannians and leaf immersions. — Finite dimensional manifolds.

G. LUDWIG. — **Die Grundstrukturen einer physikalischen Theorie.** — Hochschultext. — Un vol. broché, 17 × 25, de VIII, 261 p. — Prix: DM 44.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

Problemstellung. — Die drei Hauptteile einer physikalischen Theorie. Der Grundbereich realer Gegebenheiten. — Der Aufbau einer mathematischen Theorie: Die Regeln der mathematischen Sprache. Axiome und Beweise. Logik. Mengentheoretische Axiome. — Abbildungsprinzipien. — Unscharfe Abbildungsprinzipien. — Der physikalisch wirk-same Teil einer PT: Mathematische Strukturen. Ableitung von Strukturen. Die axio-matische Basis einer PT und der Begriff des Naturgesetzes. — Beziehungen zwischen physikalischen Theorien. — Die Endlichkeit der Physik. — Physikalische Möglichkeit, physikalische Wirklichkeit und Unentscheidbarkeit als Begriffe in einer PT: Hypothesen in einer PT. Verhalten von Hypothesen bei Erweiterung des Realtextes. Verhalten von Hypothesen beim Übergang zu umfangreicheren Theorien. Wirklich, möglich, unent-scheidbar. Mengen von Bildern realer Sachverhalte. Der Wirklichkeitsbereich. Wirklich-keitsäquivalente Basen einer PT. — Wärscheinlichkeit und Verfügbarkeit: Auswahl-verfahren und Statistik. Wahrscheinlichkeiten für physikalische möglichkeiten. Verfüg-barkeit. Fast sichere Hypothesen. Der Einzelfall und der Test von Wahrscheinlichkeiten. Unschärfemengen für Wahrscheinlichkeiten. — Physikalische Systeme und physikalische Objekte: Präparierverfahren, Registrierverfahren und physikalische Systeme. Gesamt-heiten und Effekte. Physikalische Objekte. Physikalische Möglichkeiten beim Präparieren und Registrieren.

Siegfried PRÖSSDORF. — **Some classes of singular equations.** — North Holland math-ematical library, vol. 17. — Un vol. relié, 16 × 23, de XIV, 417 p. — Prix: Dfl. 120.00. — North Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

Noether operators: Some fundamental concepts and notations. Projections and normally solvable operators. Noether operators. Operators with bounded regularizer. Operators with unbounded regularizer. Comments and references. — *Abstract singular equations of normal type*: An algebra of operator functions. Abstract singular equations. Factorization of functions. Application of the factorization to the solution of singular equations. Comments and references. — *Special singular equations of normal type*: Discrete Wiener-Hopf equations. Wiener-Hopf integral equations. Paired Wiener-Hopf equations. Singular integral equations. Comments and references. — *Abstract singular equations of non-normal type*: The method of special factorization. Wiener-Hopf equations. Abstract singular equations. An algebra of singular operators. The method of left regularization. Comments and references. — *Wiener-Hopf integral equations of non-normal type and their discrete analogue*: Discrete Wiener-Hopf equations. Wiener-Hopf integral equations. Paired discrete Wiener-Hopf equations. Paired Wiener-Hopf integral equations. Non-bounded regularization of paired Wiener-Hopf equations. Comments and references. — *Singular integral equations of non-normal type*: Lemmas. The spaces generated by zeros of the symbol. Symbols with zeros of integral orders. Symbols with zeros of non-integral orders. A more general case of degeneration. The solution of a singular integral equation of non-normal type by means of factorization. Non-bounded regularization of singular integral equations of non-normal type. Comments and references. — *Systems of singular equations of normal type*: A theorem on operator matrices. Factorization of matrix functions. Systems of abstract singular equations. Systems of Wiener-Hopf equations. Systems of singular integral equations. Comments and references. — *Systems of singular equations of non-normal type*: Representations of singular matrix functions. Systems of discrete Wiener-Hopf equations. Systems of Wiener-Hopf integral equations. Systems of

paired Wiener-Hopf equations. Systems of singular integral equations. Non-bounded regularization of systems of singular integral equations. Comments and references. — *Singular equations in some countably normed spaces and spaces of distributions*: Operator equations in distribution spaces. Discrete Wiener-Hopf equations. Wiener-Hopf integral equations. Singular integral equations. Comments and references. — *Singular equations with discontinuous functions*: Abstract singular operator with piecewise continuous coefficients. Wiener-Hopf equations with piecewise continuous coefficients. Wiener-Hopf integro-difference equations and integral equations of the first kind. Singular integral equations with piecewise continuous coefficients. Singular integral equations of non-normal type with piecewise continuous coefficients. Singular integral equations of non-normal type on non-closed curves. Singular integral equations of non-normal type with bounded measurable coefficients. Systems of singular integral equations of non-normal type with piecewise continuous coefficients. Comments and references. — *Approximation methods for the solution of singular equations*: General theorems on projection methods. Projection methods for the solution of abstract singular equations. Discrete Wiener-Hopf equations of normal type... of non-normal type. Wiener-Hopf integral equations of normal type... of non-normal type. Singular integral equations of normal type. Singular integral equations of non-normal type. Comments and references.

A. H. LIGHTSTONE. — **Mathematical logic: an introduction to model theory.** — Edited by H. B. Enderton. — Mathematical concepts and methods in science and engineering, volume 9. — Un vol. relié, 16,5 × 23,5 de XIII, 338 p. — Prix: \$27.00. — Plenum Press, New York/London, 1978.

STATEMENT SYSTEMS AND PROPOSITIONAL CALCULUS: *Statement systems*: Statement systems. Language of a statement system. Names for Swffs. — *Propositional calculus*: Well-formed formulas. Parentheses. Main connective of Wffs. Names for Wffs; principal connective of name. Valuations. — *Provable Wffs*: Σ -interpreters. True Wffs. Proofs and provable Wffs. Rules of inference. Equivalent Wffs. — *Substitution theorems*: Subwffs, components, and Wff-builders. Substitution theorem for Wffs. — *Duality*: Normal form. Syntactical transforms. Normal transforms. Duality. — *Deducibility and completeness*: More provable Wffs. Conjunctive normal form. Completeness. Deducibility. Consistent sets and contradictory sets. Maximal-consistent sets. Strong completeness theorem. — SEMANTICAL SYSTEMS AND PREDICATE CALCULUS: *Semantical systems*: Relational systems. Semantical systems. Language of a semantical system. Extensions; elementary extensions. — *Predicate calculus*: Well-formed formulas. Parentheses. Main connective of Wffs. Names for Wffs; principal connective of name. Syntactical transforms. Interchange and substitution transforms. Valuations. — *Provable Wffs*: Σ -interpreters. True Wffs. Proofs and provable Wffs. Equivalent Wffs. Rules of inference. A fact about the interchange transform. — *Substitution theorems*: Subwffs, components, and Wff-builders. Substitution theorem for Wffs. — *Duality*: Normal form. Normal transforms. Duality. Prenex normal form. — *Deducibility and completeness*: Deducibility. Consistent sets and contradictory sets. Strong completeness theorem. Maximal-consistent sets. $\exists$ -complete sets. Proof of the strong completeness theorem. — APPLICATIONS: *Nonstandard analysis*: Extended natural number system. Extended real number system. Properties of $\simeq$. Paradoxes. The limit concept. Continuity; uniform continuity. Principles of permanence. — *Normal semantical systems*: Equality relations. Normal semantical systems. Löwenheim-Skolem theorem. Theories. — *Axiomatic set theory*: Axiom of extensionability. Axiom scheme of replacement. Axiom of power set. Axiom of sum set. Axiom of infinity. Nonstandard set theory. Axiom of regularity. Axiom of choice. — *Complete theories*: Vaught's test. Diagrammatic sets. Simplifying the concept of a model. Robinson's test.

James Bell COOPER. — **Saks spaces and applications to functional analysis.** — North Holland mathematics studies, vol. 28. — Un vol. broché, $16,5 \times 24$, de x, 235 p. — Prix: Dfl. 70.00. — North Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

Mixed topologies: Basic theory. Examples. Saks spaces. Special results. Notes. — *Spaces of bounded, continuous functions*: The strict topologies. Algebras of bounded, continuous functions. Duality theory. Vector-valued functions. Generalised strict topologies. Notes. — *Spaces of bounded, measurable functions*: The mixed topologies. Linear operators and vector measures. Vector-valued measurable functions. Notes. — *Von Neumann algebras*: The algebra of operators in Hilbert spaces. Von Neumann algebras. Notes. — *Spaces of bounded holomorphic functions*: Mixed topologies on H^∞ . The mixed topologies on $H^\infty(U)$. The algebra H^∞ . The H^∞ — functional calculus for completely non unitary contractions. Notes. — *Appendix*: Categories of Saks spaces. Duality for compactological and uniform spaces. Some functors. Duality for semigroups and groups. Extensions of categories. Notes.

André DELACHET. — **La topologie.** — Collection « Que sais-je ; », vol. 1710. — Un vol. broché, $11,5 \times 17,5$, de 126 p. — Presses universitaires de France, Paris, 1978.

Les nombres réels: Notions sur les ensembles ordonnés; groupes ordonnés. Construction de l'ensemble $\mathbf{R}$ des nombres réels. Prolongement à $\mathbf{R}$ de la structure de corps commutatif de $\mathbf{Q}$. La droite numérique achevée. — *Notions de topologie générale*: Espaces topologiques ouverts. Fermés, voisinages, espaces topologiques séparés. Intérieur, adhérence, frontière. Sous-espaces topologiques. Points isolés, point d'accumulation. Espace topologique produit. — *Notions de continuité et de limite.* — *Espaces compacts et espaces connexes*: Rappel de quelques propriétés des applications d'un segment $[a, b]$ de $\mathbf{R}$ dans $\mathbf{R}$, continues sur ce segment. Définition des espaces compacts. Principales propriétés des espaces compacts. Connexité. Connexes de $\mathbf{R}$. Connexité par arcs. — *Les espaces métriques*: Distances. Topologie induite par une distance. Distances topologiquement équivalentes, distances équivalentes. Sous-espaces métriques, espaces produits. Limite et continuité dans un espace métrique. Valeurs d'adhérence d'une suite. Etude du cas particulier de $\mathbf{R}$; limite supérieure et inférieure. Continuité uniforme. Espaces complets. Espaces métriques compacts. — *Espaces vectoriels normés*: Espaces vectoriels normés; espaces de Banach. Parties convexes d'un e.v.n. Applications multilinéaires continues. Continuité des opérations dans un espace vectoriel normé. Normes équivalentes. Corrigé des exercices numérotés.

Combinatorics, vol. 1. — Edited by A. Hajnal and Vera T. Sos. — Colloquia mathematica societatis Janos Bolyai, vol. 18. — Un vol. relié, $17,5 \times 24,5$ de 606 p. — Prix: Dfl. 325.00 pour les 2 volumes. — North Holland Publishing Company, Amsterdam/Oxford/New York, 1978.

V.A. Aksionov, L. S. Mel'nikov: Essay on the theme: The three-color problem. — L. Babai, P. Frankl: Isomorphisms of Cayley graphs I. — L. Babai, J. Nešetřil: High chromatic rigid graphs I. — Z. Baranyai: On a search problem of G.O.H. Katona. — J. Beck: A concentration problem in combinatorial number theory. — H. Beker: Strongly divisible designs. — G. B. Beljavskaja, S. Murathudjaev: About admissibility of N -ary quasi-groups. — C. Berge: Multicolorings. — J. C. Bermond, A. Kotzig, J. Turgéon: On a combinatorial problem of antennas in radioastronomy. — J. Bosak: Geodetic graphs. — A. E. Brouwer: On associative block designs. — F. C. Bussemaker, D. M. Cvetkovic, J. J. Seidel: Graphs related to exceptional root systems. — G. Chaty: On

critically and minimally k -vertex (arc) strongly connected digraphs. — *C. C. Chen, A. J. W. Hilton*: A 4-colour conjecture for planar graphs. — *F. R. K. Chung, R. L. Graham, N. Pippenger*: On graphs which contain all small trees, II. — *W. Deuber, B. Rothschild*: Categories without the Ramsey property. — *M. Deza, P. Erdős, P. Frankl*: Intersection properties of systems of finite sets. — *W. Dörfler*: A complete lattice in graph theory. — *D. Duffus, I. Rival*: Crowns in dismantlable partially ordered sets. — *C. S. Edwards*: Complete subgraphs with largest sum of vertex degrees. — *R. J. Faudree, R. H. Schelp*: Connected Ramsey numbers for paths and stars. — *M. Fiedler*: Aggregation in graphs. — *S. Földes, P. L. Hammer*: On a class of matroid-producing graphs. — *A. Frank, A. Gyárfas*: How to orient the edges of a graph? — *P. Frankl*: The Erdős-Ko-Rado theorem is true for $n = ckt$. — *M. R. Garey, R. L. Graham, D. S. Johnson*: On a number-theoretic bin packing conjecture. — *A. Germa*: Decomposition of the edges of a complete t -uniform directed hypergraph. — *R. Giles*: Facets and other faces of branching polyhedra. — *M. C. Golumbic*: Threshold graphs and synchronizing parallel processes. — *I. Gutman*: Partial ordering of forests according to their characteristic polynomials. — *R. K. Guy*: Partizan and impartial combinatorial games. — *A. Gyárfas, J. Lehel*: Packing trees of different order into K_n . — *B. Gyires*: On permanent inequalities. — *E. Györi*: On division of graphs to connected subgraphs. — *R. Häggkvist*: A solution of the Evans conjecture for latin squares of large size. — *M. Hall, Jr.*: Matrices satisfying the incidence equation. — *H. Harborth*: Crossings on edges in drawings of complete multipartite graphs. — *B. Harris*: On a theorem of Volosin concerning enumeration of function compositions. — *M.-C. Heydemann, D. Sotteau*: Line-graphs of hypergraphs II. — *C. Hoede*: On characterization of Hamiltonian graphs. — *A. J. Hoffman, D. E. Schwartz*: On a lattice polyhedra. — *S. G. Hoggar*: Equiangular lines.

Combinatorics, vol. 2. — Edited by A. Hajnal and Vera T. Sos. — Colloquia mathematica societatis Janos Bolyai, vol. 18. — Un vol. relié, 17,5 × 24,5 p. 609-1220. — Prix: Dfl. 325.00 pour les 2 volumes. — North Holland Publishing Company, Amsterdam/Oxford/New York, 1978.

W. Imrich: Graphical regular representations of groups of odd order. — *R. Indik, V. Pless*: Code graphs. — *S. Jendrol'*: On the face-vectors and vertex-vectors of maps. — *L. Kaszonyi*: An example for geometries having property $K(4)$ and being not four-colourable. — *L. Kaszonyi*: On half-planar geometries. — *G. O. H. Katona*: Continuous versions of some extremal hypergraph problems. — *A. V. Kostochka*: Degree, girth and chromatic number. — *A. Kotzig, J. Turgeon*: β -valuations of regular graphs with complete components. — *R. Laskar*: Decomposition of some composite graphs into Hamilton cycles. — *L. Lovasz*: Some finite basis theorems on graph theory. — *L. Lovasz, K. Vesztergombi*: Restricted permutations and Stirling numbers. — *W. Mader*: On n -connected subsets of a graph. — *C. St. J. A. Nash-Williams*: Should axiomatic set theory be translated into graph theory? — *J. Nešetřil, V. Rödl*: Partition (Ramsey) theory — a survey. — *C. Palm, J. M. S. Simoes-Pereira*: Edge sets of hypergraphs with a B_q -like property and partition numbers of graphs. — *A. Pultr*: On productive classes of graphs determined by prohibiting given subgraphs. — *D. K. Ray-Chaudhuri*: Some characterization theorems for graphs and incidence structures. — *R. C. Read, P. Rosenstiehl*: On the Gauss crossing problem. — *A. Recski*: Contributions to the n -port interconnection problem by means of matroids. — *A. Recski*: Matroidal structure of n -ports. — *P. J. Robinson, J. S. Wallis*: A note on using sequence to construct orthogonal designs. — *I. Z. Ruzsa*: On the cardinality of $A + A$ and $A - A$. — *I. Z. Ruzsa, E. Szemerédi*: Triple systems with no six points carrying three triangles. — *H. Sachs*: On a theorem connecting the factors of a regular graph with the eigenvectors of its line graph. — *G.*

Schaar : On 3-Hamiltonian cubes of connected graphs. — *A. Schrijver* : The linking of matroids by linking systems. — *J. J. Seidel* : Eutactic stars. — *M. Sekanina* : Hamiltonian lines in powers of infinite graphs. — *M. Simonovits, V. T. Sos* : Intersection theorems for graphs II. — *Z. Skupien* : Finding all maximal path factors of a tree and related problems. — *N. J. A. Sloane* : New bounds for error-correcting codes and packing numbers (summary). — *F. Sterboul* : A problem in constructive combinatorics and related questions. — *L. Suranyi* : A note on a conjecture of Gallai concerning α -critical graphs. — *W. T. Tutte* : Chromatic sums. — *B. Uhrin* : On two combinatorial identities useful in linear inequalities. — *K. S. Vijayan* : On arc-transitive graphs. — *H.-J. Voss* : Maximal circuits and paths in graphs. Extreme cases. — *W. Wessel* : A second family of edge-critical wheels. — *R. J. Wilson* : Graph theory and chemistry. — *A. P. Wojda* : Strongly (p, q) -Hamiltonian graphs. (Some results). — *B. Zelinka* : Dot-compositions of graphs.

Vladimir G. BOLTJANSKII. — **Hilbert's third problem.** — Translated by Richard A. Silverman and introduced by Albert B. J. Novikoff. — Scripta series in mathematics. — Un vol. relié, 15 × 22,5 de x, 228 p. — Prix: £14.00. — V. H. Winston & Sons, distributed solely by Halsted Press, a division of John Wiley & Sons, Inc., New York/Toronto/London/Sydney, 1978.

Introduction. — *The measurement of area and volume* : The concept of area. The area axioms. Further properties of area. The independence of the area axioms. Methods for calculating the area of figures. The measurement of volume and Hilbert's problem. — *Equidecomposability of polygons* : The Bolyai-Gerwien theorem. Equidecomposability and equicomplementability in non-Archimedean and non-Euclidean geometries. Equidecomposability with respect to the group of translations and central inversions. Equidecomposability with respect to the group of translations. Minimality of the group of translations and central inversions. — *Equidecomposability of polyhedra* : Equidecomposability of symmetric polyhedra. The solution of Hilbert's third problem. Hadwiger's theorem. Bricard's condition. Equivalence of the methods of decomposition and complementation. The Dehn-Sydler theorem. Polyhedra equidecomposable with a cube. Equidecomposability of polyhedra with respect to the group of translations. The Dehn-Hadwiger invariants and Jessen's theorem. Minimality of the group of orientation-preserving motions. The algebra of polyhedra. — *Conclusion.* — *Appendix* : On the concept of length.

Selected papers on precalculus. — Reprinted from the "American mathematical monthly" and from the "Mathematics Magazine", selected and arranged by Tom M. Apostol, Gulbank D. Chakerian, Geraldine C. Darden, John D. Neff. — The Raymond W. Brink selected mathematical papers, vol. 1. — Un vol. relié, 18,5 × 26 de xvii, 467 p. — Prix: £9.15. — The Mathematical Association of America (distr. by John Wiley & Sons Ltd., New York/Toronto/London/Sydney) 1978.

PEDAGOGY: 14 articles par: T. H. Hildebrandt, M. Richardson, H. F. S. Jonah & M. W. Keller, C. G. Hempel, A. D. Wallace, F. S. Nowlan, M. Richardson, A. Brauer, H. P. Thielman, K. O. May, R. P. Boas, Jr., W. P. Cooke, T. Lehrer, H. D. Larsen (ed.). — NUMBERS: *Integers* : 10 articles par: L. V. Robinson, R. Bellman, I. D. MacDonald, M. Wunderlich, R. L. Hemminger, G. E. Andrews, A. L. Leigh Silver, K. O. May, T. M. Green, E. L. Spitznagel, Jr. *Irrational numbers* : 8 articles par: R. Lyon & M. Ward, R. F. Johnsonbaugh, E. Halfar, R. Gauntt, E. A. Maier, M. V. Subbarao, J. P. Jones & S. Toporowski, I. Niven & E. A. Meier. *Complex numbers* : S. A. Schelkunoff, D. E. Richmond, L. Fuchs & T. Szele, E. D. Gaughan, M. F. Smiley. *Infinity* : 4 articles par:

R. M. Winger, T. Fort, W. L. G. Williams, R. M. Winger. — INDUCTION, IDENTITIES, AND INEQUALITIES: *Induction*: 8 articles par: J. W. A. Young, E. T. Bell, W. A. Hurwitz, R. G. Albert, R. C. Buck, V. L. Klee, Jr., L. Moser, D. S. Greenstein. *Identities*: 3 articles par: R. C. Mullin, D. Allison, R. G. Stein. *Inequalities*: 3 articles par: D. J. Newman, B. Åkerberg, L. H. Lange. — TRIGONOMETRY AND TRIGONOMETRIC FUNCTIONS: 21 articles par: R. D. Carmichael, J. V. Uspensky, R. Woods, W. Dancer, E. J. McShane, A. S. Householder, H. L. Dorwart, R. W. Wagner, F. E. Wood, L. J. Burton, T. S. Chu, E. L. Eagle, A. K. Bettinger, C. M. Fulton, M. Golomb, D. Pedoe, F. H. Young, H. V. Craig (ed.), N. Schaumberger, A. R. Amir-Moéz, R. B. Kershner. — ELEMENTARY ALGEBRA: *Polynomials*: 3 articles par: J. Westlund, L. S. Dederick, L. Brickman & L. Steinberg. *Vector algebra*: 5 articles par: C. J. Coe & G. Y. Rainich, S. Bourne, M. K. Fort, Jr., D. T. Dwyer, M. S. Klamkin. *Constructions with straightedge and compass*: 2 articles par: L. E. Dickson & N. D. Kazarinoff. *Miscellaneous*: 6 articles par: L. J. Paradiso, R. A. Garver, L. S. Johnston, R. A. Rosenbaum, S. W. Golomb, J. E. Nymann. — SOLUTIONS OF EQUATIONS: 13 articles par: G. R. Dean, E. J. Oglesby, J. P. Ballantine, E. C. Kennedy, G. Henriquez, H. M. Gehman, L. R. Ford, A. A. Albert, C. Adler, D. E. Whitford & M. S. Klamkin, M. J. Hellman. — SYNTHETIC GEOMETRY: *Triangles*: 8 articles par: F. Cajori, O. Dunkel, J. O. Engelhardt, G. Polya, W. E. Bleick, G. Gilbert & D. MacDonnell, D. Pedoe, R. J. Webster. *Other configurations*: 9 articles par: F. V. Morley, H. C. Bradley, N. A. Court, M. S. Knebelman, R. B. Kirchner, N. D. Kazarinoff & R. Weitzenkamp, S. Kravitz, M. Goldberg, F. Abeles. *Miscellaneous*: 5 articles par: H. T. Scudder, C. R. Wylie, Jr., D. A. Moran, J. L. Ercolano, R. Isaacs. — CONIC SECTIONS: *Equations*: 10 articles par: W. W. Landis, A. C. Lunn, E. S. Allen, H. B. Thornton, D. C. Duncan, L. S. Johnston, A. E. Johns, M. T. Bird, F. Hawthorne, N. Anning. *Classification and construction*: 7 articles par: L. S. Johnston, R. C. Yates, F. H. Young, G. B. Huff, M. Pascual, J. B. Easton, *Tangents*: 4 articles par: W. D. Lambert, F. H. Young, F. H. Young & L. Ericksen, W. R. Ransom. *Applications*: 3 articles par: T. M. Putnam, R. T. Coffman & C. S. Ogilvy, R. Coffman. — ANALYTIC GEOMETRY: *Lines and planes*: 10 articles par: G. W. Greenwood, K. May, C. S. Scott, J. P. Ballantine & A. R. Jerbert, R. R. Stoll, S. Leader, W. R. Ransom, T. E. Mott, R. L. Eisenman. *Curves and surfaces*: 8 articles par: J. P. Wilson, A. Kempner, G. M. Juredini, L. S. Johnston, P. C. Hammer, R. W. Wagner, F. Max Steen, M. S. Klamkin. — AREA AND VOLUME: 11 articles par: H. L. Coar, R. P. Baker, L. E. Dickson, W. R. Longley, K. P. Williams, J. L. Coolidge, J. W. Cell, V. Thébault, M. K. Fort, Jr., S. H. Gould, C. H. Raifaizen. — AUTHOR INDEX.

Selected papers on algebra. — Reprinted from the "American Mathematical Monthly" and from the "Mathematics Magazine", selected and arranged by an editorial committee consisting of Susan Montgomery, Elizabeth W. Ralston, S. Robert Gordon, Gerald J. Janusz, Murray M. Schacher, Martha K. Smith. The Raymond W. Brink selected mathematical papers, vol. 3. — Un vol. relié, 18,5 × 26 de xv, 537 p. — Prix: £10.70. — The Mathematical Association of America (distr. by John Wiley & Sons, Ltd., New York/Toronto/London/Sydney), 1978.

GROUP THEORY: *Group axioms and examples*: 3 articles par: M. Slater, M. Barr, S. K. Berberian. *Decomposition of groups*: 2 articles par: R. Hirshon, S. Haber & A. Rosenfeld. *Homomorphisms, automorphisms, and mappings of groups*: Bibliographic entries. *Abelian groups*: 2 articles par: E. Schenkman, E. R. Gentile. *Linear groups and the symmetric groups*: 5 articles par: E. L. Spitznagel, Jr., T. L. Barlow, H. A. Bender, J. Mariani, C. W. Curtis. *Subgroups and elements of finite groups*: 3 articles par: J. H. McKay, R. Brauer, W. Feit. *History*: 2 articles par: J. E. Burns, G. A. Miller. *Applications*: 2 articles par: T. J. Fletcher, E. Kasner. — RING THEORY: *Euclidean rings and*

unique factorization domains : 7 articles par : W. Rudin, T.-S. Rhai, P. J. Arpaia, R. Singer, J. C. Wilson, P. Samuel, P. M. Cohn. *Commutative rings* : 4 articles par : W. R. Scott, I. Reiner, R. W. Gilmer. *Modules* : 3 articles par : W. J. Wong, W. G. Leavitt, R. E. Peinado. *Division algebras* : 5 articles par : R. S. Palais, R. von Randow, I. Niven, I. N. Herstein, T. J. Kaczynski. *Non-commutative rings* : 10 articles par : L. M. Weiner, A. A. Sagle, N. H. McCoy, D. B. Erickson, C. W. Bitzer, P. Hill, A. Kertész & O. Steinfeld, Y. Utumi, P. M. Cohn, I. Fischer & R. R. Struik. *Non-associative rings and algebras* : 3 articles par : H. Zassenhaus, C. E. Tsai, J. Goldman & Seymour Kass. — FIELD THEORY AND ALGEBRAIC NUMBER THEORY: *Field theory and Galois theory* : 5 articles par : H. Zassenhaus, R. Gilmer, J. Lipman, R. L. Roth, R. L. Borger. *Finite fields* : 3 articles par : S. MacLane, R. C. Mullin, G. J. Simmons. *Reducibility of polynomials* : 2 articles par : A. A. Albert, H. Skala. *Valuation theory* : 2 articles par : C. C. MacDuffee, P. Monsky. *Algebraic number theory* : 5 articles par : R. MacKenzie & J. Scheuneman, A. Hausner, I. Gerst & J. Brillhart, B. F. Wyman, L. J. Goldstein. — LINEAR ALGEBRA: *Equations, determinants, and related topics* : 9 articles par : G. A. Miller, H. T. Burgess, O. Taussky, D. E. Whitford & M. S. Klamkin, S. M. Robinson, H. Flanders, D. W. Robinson, S. Cater, H. Liebeck. *Characteristic polynomials and eigenvalues* : 5 articles par : W. M. Scott, W. V. Parker, J. Schmid, R. Bellman, I. M. Scheffer. *Inner products and quadratic forms* : 6 articles par : L. Mirsky, H. Schneider, A. M. Gleason, S. M. Samuels, B. Walsh, A. M. Adelberg. *Canonical forms* : H. K. Farahat & L. Mirsky, M. Epstein & H. Flanders, L. Mirsky. *Linear algebra over finite fields* : 2 articles par : D. W. Crowe, S. D. Fisher & M. N. Alexander. *Applications* : 7 articles par : J. L. Brenner, W. V. Parker, W. Swartz, J. Levine, S. W. Golomb & L. D. Baumert, E. R. Berlekamp & E. N. Gilbert & F. W. Sinden, F. D. Parker. *Other topics* : 3 articles par : H. Flanders, M. Marcus, O. Taussky. — HISTORY: 3 articles par : W. C. Eells, J. D. Swift, G. Birkhoff. — ADDITIONAL TOPICS: 2 articles par : O. Taussky, I. Niven. (Bibliographic entries à la fin de chaque chapitre.) — AUTHOR INDEX.

Studies in ordinary differential equations. — Edited by Jack Hale. — Studies in mathematics, vol. 14. — Un vol. relié, 14 × 21, de ix, 278 p. — Prix: £6.70. — The Mathematical Association of America (distr. par John Wiley & Sons, Ltd. New York/London/Toronto/Sydney), 1978.

Jack Hale : Preface. — *J. P. LaSalle* : Stability theory for difference equations. — *G. R. Sell* : What is a dynamical system ? — *M. M. Peixoto* : Generic properties of ordinary differential equations. — *L. K. Jackson* : Boundary value problems for ordinary differential equations. — *J. Mawhin* : Functional analysis and boundary value problems. — *H. A. Antosiewicz* : Fixed point theorems and ordinary differential equations. — *L. Cesari* : The alternative method in nonlinear oscillations. — *Y. Sibuya* : Asymptotic methods. — Index.

DIEUDONNÉ, J. — Éléments d'analyse, tome 7. — Cahiers scientifiques publiés sous la direction de Gaston Julia, vol. 40. — Un vol. broché, 15,5 × 24, de xvi, 296 p. — Prix: FF 140.00. — Paris: Gauthier-Villars, 1978.

Chapitre 23 : Equations fonctionnelles linéaires, première partie : Opérateurs pseudo-différentiels : Opérateurs intégraux. Opérateurs intégraux de type propre. Opérateurs intégraux sur les fibrés vectoriels. Fibré des densités et sections noyaux. Sections bornées. Opérateurs de Volterra. Opérateurs de Carleman. Fonctions propres généralisées. Distributions noyaux. Distributions noyaux régulières. Opérateurs régularisants et composition des opérateurs. Microsupport singulier d'une distribution. Equations de convolution.

Solutions élémentaires. Problèmes d'existence et d'unicité pour les systèmes d'équations linéaires aux dérivées partielles. Symboles d'opérateurs. Intégrales oscillantes. Opérateurs de Lax-Maslov. Opérateurs pseudo-différentiels. Symbole d'un opérateur pseudo-différentiel de type propre. Opérateurs pseudo-différentiels matriciels. Paramétrix des opérateurs elliptiques sur un ouvert de $\mathbf{R}^n$. Opérateurs pseudo-différentiels dans les espaces $H_0^s(X)$. Problème de Dirichlet classique et problèmes de Dirichlet grossiers. L'opérateur de Green. Opérateurs pseudo-différentiels sur une variété. Adjoint d'un opérateur pseudo-différentiel sur une variété. Composé de deux opérateurs pseudo-différentiels sur une variété. Extension des opérateurs pseudo-différentiels aux sections distributions. Symboles principaux. Paramétrix des opérateurs elliptiques: cas des variétés. Théorie spectrale des opérateurs elliptiques hermitiens: I. Prolongements autoadjoints et conditions aux limites. Théorie spectrale des opérateurs elliptiques hermitiens: II. Fonctions propres généralisées. Opérateurs pseudo-différentiels essentiellement autoadjoints: I. Opérateurs de convolution hermitiens sur $\mathbf{R}^n$. Opérateurs pseudo-différentiels essentiellement autoadjoints: II. Spectres atomiques. Opérateurs pseudo-différentiels essentiellement autoadjoints: III. Opérateurs elliptiques hermitiens sur une variété compacte. Opérateurs différentiels invariants. Propriétés différentielles de fonctions sphériques. Exemple: harmoniques sphériques.

DIEUDONNÉ, J. — **Eléments d'analyse, tome 8.** — Cahiers scientifiques publiés sous la direction de Gaston Julia, vol. 41. — Un vol. broché, 15,5 × 24, de xiii, 330 p. — Prix: FF 170.00. — Gauthier-Villars, Paris, 1978.

Chapitre 23 : Equations fonctionnelles linéaires, 2^e partie : Problèmes aux limites : La théorie de Weyl-Kodaira : I. Opérateurs différentiels elliptiques dans un intervalle de $\mathbf{R}$. II: Conditions aux limites. III: Opérateurs autoadjoints associés à une équation différentielle linéaire. IV: Fonction de Green et spectre. V: Le cas des équations du second ordre. VI: Exemple: équations du second ordre à coefficients périodiques. VII: Exemple: équations de Gelfand-Levitan. — *Potentiels de multicouches :* I: Symboles de type rationnel. II: Cas des multicouches hyperplanes. III: Cas général. — *Problèmes aux limites fins pour les opérateurs différentiels elliptiques :* I: L'opérateur de Calderon. II: Problèmes aux limites elliptiques. III: Critères d'ellipticité. IV: Les espaces $H^{s,r}(U_+)$. V: Espaces $H^{s,r}$ et P -potentiels. VI: La régularité à la frontière. VII: Problèmes coercitifs. VIII: Formules de Green généralisées. IX: Problèmes fins associées aux problèmes coercitifs. X: Exemples. XI: Extension à certains opérateurs non hermitiens. XII: Cas des opérateurs du second ordre; problème de Neumann. XIII: Le principe du maximum. — *Equations paraboliques :* I. Construction d'une résolvante unilatérale locale. II: Le problème de Cauchy global unilatéral. III: Traces et valeurs propres. Distributions évolutives. — *L'équation des ondes :* I: Le problème de Cauchy généralisé. II: Propagation et domaine d'influence. III: Signaux, ondes et rayons. — *Equations strictement hyperboliques :* I: Résultats préliminaires. II: Construction d'une résolvante approchée locale. III: Exemples et variantes. IV: Le problème de Cauchy pour les opérateurs différentiels hyperboliques; existence et unicités locales. V: Problèmes globaux. VI: Extension aux variétés. Application au spectre d'un opérateur elliptique hermitien.

Garrett BIRKHOFF and Gian-Carlo ROTA. — **Ordinary differential equations.** — 3d edition. — Un vol. relié, 17,5 × 23,5 de xi, 342 p. — Prix: £12.25. — John Wiley & Sons, New York/Santa Barbara/Chichester/Brisbane/Toronto, 1978.

First-order differential equations : Introduction. Fundamental theorem of the calculus. First-order linear equations. Level curves and quasilinear DE's. Separate variables. Exact differentials; integrating factors. The linear fractional equation. Graphical integra-

tion. Regular and normal curve families. Initial value problems. Uniqueness and continuity. The comparison theorem. — *Second-order linear equations*: Initial value problem. Constant coefficient case. Uniqueness theorem; Wronskian. Separation and comparison theorems. Poincaré phase plane. Adjoint operators. Lagrange identity. Green's functions. Variation of parameters. Two-endpoint problems. Green's functions. — *Linear equations with constant coefficients*: The characteristic polynomial. Real and complex solutions. Linearly independent solutions. Solution bases. Stability. Inhomogeneous equations. The transfer function. The Nyquist diagram. The Green's function. — *Power series solutions*: Introduction. Method of undetermined coefficients. Sine and cosine functions. Bessel functions. Analytic functions. Method of majorants. First-order non-linear differential equations. Undetermined coefficients. Radius of convergence. Method of majorants, II. Complex solutions. — *Plane autonomous systems*: Autonomous systems. Plane autonomous systems. Poincaré phase plane. Linear autonomous systems. Equivalent systems. Linear equivalence. Stability. Focal, nodal and saddle points. Method of Liapunov. Undamped non-linear oscillations. Soft and hard springs. Damped nonlinear oscillations. Limit cycles. — *Existence and uniqueness theorems*: Introduction. Lipschitz condition. Well-set problems. Continuity. Normal systems. Equivalent integral equation. Successive approximation. Linear systems. Local existence theorem. Analytic equations. Continuation of solutions. The perturbation equation. Plane autonomous systems. The Peano existence theorem. — *Approximate solutions*: Introduction. Cauchy polygons. Error bound. Sharper results. Midpoint quadrature. Trapezoidal quadrature. Trapezoidal integration. Order of accuracy. The improved Euler method. The modified Euler method. The cumulative error. — *Efficient numerical integration*: Introduction. Difference operators. Characteristic equation; stability. Polynomial interpolation. The interpolation error. Numerical differentiation. Roundoff errors. Milne's method. Higher-order quadrature. Gaussian quadrature. Multistep methods. Richardson extrapolation. Local power series. The Runge-Kutta method. — *Regular singular points*: The continuation principle. Movable singular points. First-order equations. Circuit matrix. Canonical bases. Regular singular points. Bessel equation. The fundamental theorem. Alternative proof of the fundamental theorem. Hypergeometric functions. The Jacobi polynomials. Singular points at infinity. Fuchsian equations. — *Sturm-Liouville systems*: Sturm-Liouville systems. Sturm-Liouville series. Physical interpretations. Singular systems. Prüfer substitution. The Sturm comparison theorem. The oscillation theorem. The sequence of eigenfunctions. The Liouville normal form. Modified Prüfer substitution. The asymptotic behavior of Bessel functions. Distribution of eigenvalues. Normalized eigenfunctions. Inhomogeneous equations. Green's functions. The Schroedinger equation. The square-well potential. Mixed spectrum. — *Expansions in eigenfunctions*: Fourier series. Orthogonal expansions. Mean-square approximation. Completeness. Orthogonal polynomials. Properties of orthogonal polynomials. Properties of orthogonal polynomials. Chebyshev polynomials. Euclidean vector spaces. Completeness of eigenfunctions. Hilbert space. Proof of completeness. — *Appendix A: Linear systems*: Matrix norm. Constant-coefficient systems. The matrizant. Floquet theorem; canonical bases. — *Appendix B: Numerical integration in BASIC*: Rudiments of BASIC. Cauchy polygon method. Quadrature program. Improved and modified Euler methods. Fourth-order Runge-Kutta.

Martin GARDNER. — **Aha! Insight.** — Un vol. broché, 18,5 × 23, de VIII, 179 p. — Prix: \$7.10. — Scientific American, Inc. & W. H. Freeman, New York/San Francisco, 1978.

Combinatorial aha!: A sticky gun problem. The pingpong puzzle. Quibble's glasses. Perplexing paths. The bewildered babies. Quibble's cups. Steak strategy. The troublesome tiles. Quibble's pets. The medicine mixup. The broken bracelet. — *Geometry aha!*:

Crafty cheese cuts. Dimensions in disguise. The big knight switch. Surprising swords. Payoff at the poles. Quibble's matches. Devilish divisions. Miss Euclid's cubes. Carpet confusion. The curious cake cut. — *Number aha!*: Broken records. Loch Ness monster. One too many. Eyes and legs. The big bump. Mysterious merchandise. The unlisted phone number. Hapless hat. Money matters. Uncle Henry's clock. Spirits of 1776. — *Logic aha!*: The crafty cabbie. Color mates. Six sneaky riddles. The big holdup. Dr. Ach's tests. The Ach award. Holiday haircut. Barbershop bantor. Murder at Sun Valley. Foul play at the fountain. — *Procedural aha!*: Fifteen finesse. Hippo hangup. Dividing the chores. The crooked acrobat. Island crack-up. The lazy lover. Sanitary surgeons. — *Word aha!*: Dr. W. O. Wordle. Shee Lee Hoi. Elusive eight. World's smallest crossword. Mary Belle Byram. Picture puzzles. Crazy sentences. Nosmo King. Square family. Tavern tease. Cryptic symbols. Gold tuitt. Flo Stuvy. Curious sequences. Parting words.

H. R. DOWSON. — **Spectral theory of linear operators.** — London mathematical Society monographs, vol. 12. — Un vol. relié, 15,5 × 23,5 de XII, 422 p. — Prix: £20.00. — Academic Press, London/New York/San Francisco, 1978.

General spectral theory. — *Riesz operators*: Compact operators. Riesz operators. — *Hermitian operators.* — *Pre-spectral operators*: Pre-spectral operators. Spectral operators. Normal operators. Spectral operators on Hilbert space. McCarthy's example. Logarithms of prespectral operators. Further properties of prespectral operators. Restrictions of spectral operators. Property (*P*) for normal operators. Restrictions of prespectral operators. — *Well-bounded operators*: General theory of well-bounded operators. Some special classes of well-bounded operators. The structure of well-bounded operators of type (*B*). Well-bounded operators on Hilbert space. Relationships between well-bounded and prespectral operators. Logarithms of L^p translations.

Differential equations and applications. — Proceedings of the 3d Scheveningen conference on differential equations, The Netherlands, August 29-September 2, 1977. — Edited by Wiktor Eckhaus and Eduard M. de Jager. — North Holland Mathematics Studies, vol. 31. — Un vol. broché, 16,5 × 24 cm. — Prix: Dfl. 70.00. — North Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

20 exposés par: H. Amann. — K. Kirchgässner. — P. H. Rabinowitz. — J. Schröder. — R. Temam. — B. A. Fleishman & T. J. Mahar. — W. Eckhaus & H. J. K. Moet. — R. Geel & E. M. de Jager. — P. P. N. de Groen. — J. Grasman, M. J. W. Jansen & E. J. M. Veling. — J. A. Nohel. — O. Diekmann. — C. J. van Duyn. — A. van Harten & J. M. Schuhmacher. — D. Colton. — R. J. Hangelbroek. — A. Dijkma. — J. Besjes & R. Martini. — R. J. Amos & W. N. Everitt. — G. Fichera.

Joan Fisher Box. — **R. A. Fisher: the life of a scientist.** — Un vol. relié, 16 × 23,5 de XII, 512 p. — Prix: £16.00. — John Wiley and Sons, New York/Chichester/Brisbane/Toronto, 1978.

Prologue. — Nature and nurture. — In the wilderness. — Mathematical statistics. — Rothamstedt experimental station. — Tests of significance. — The design of experiments. — The genetical theory of natural selection. — The evolution of dominance. — The role of a statistician. — Galton professor of eugenics. — Evolutionary ideas. — In the United States and India. — Blood groups in man. — Losses of war. — Arthur Balfour Professor of genetics. — The biometrical movement. — Scientific inference. — Retirement. — References. — Bibliography of R. A. Fisher.

Ruel V. CHURCHILL and James Ward BROWN. — **Fourier series and boundary value problems.** — 3d edition. — Un vol. relié, $16,5 \times 23,5$ de VIII, 271 p. — Prix: DM 46.20. — McGraw-Hill Book Company, New York/St. Louis/San Francisco/Auckland/Bogota/Düsseldorf/Johannesburg/London/Madrid/Mexico/Montreal/New Delhi/Panama/Paris/Sao Paulo/Singapore/Sydney/Tokyo/Toronto, 1978.

Partial differential equations of physics. — The method of separation of variables. — Orthogonal sets of functions. — Fourier series. — Further properties of Fourier series. — Boundary value problems. — Fourier integrals and applications. — Bessel functions and applications. — Legendre polynomials and applications. — Uniqueness of solutions. — Bibliography.

Olaf KRAFFT. — **Lineare statistische Modelle und optimale Versuchspläne.** — *Studia mathematica*, Mathematische Lehrbücher, Band 30. — Un vol. broché, $15,5 \times 23,5$ de XVI, 449 p. — Prix: DM 45.00. — Vandenhoeck & Ruprecht, Göttingen/Zürich, 1978.

Allgemeine Hilfsmittel: Die g -Inverse einer Matrix. Die mehrdimensionale Normalverteilung. Quadratische Formen in normalverteilten Zufallsvariablen. Die verallgemeinerte Varianz. — *Schätzbare Funktionen und testbare Hypothesen im linearen Modell*: Das lineare Modell. Linear schätzbare Funktionen. Testbare Hypothesen. — *Vollständige Ein- und Zwei-Faktor Experimente*: Häufig vorkommende Modelle bei ein oder zwei Faktoren. Testen auf Gleichheit aller Effekte bei vollständiger Kreuzklassifikation. Multiple Vergleiche. Das Ein-Faktor Modell mit zufallsabhängigen Effekten. — *Blockbildung*: Natürliche Prinzipien der Versuchsplanung. Einfache und zweifache Blockpläne. Kleinste Quadratschätzung und F -Statistik beim einfachen Blockplänen. Die F -Statistik bei zweifachen rechteckigen Blockpläne. — *Optimale Versuchspläne in linearen Regressionsmodellen*: Problemstellung und Definition optimaler Versuchspläne. Optimale Versuchspläne bei Regressionsgeraden. Eigenschaften der Informationsmatrix und der Äquivalenzsatz von Kiefer und Wolfowitz. Beispiele G -optimaler stetiger Versuchspläne. — *Optimale Versuchspläne bei Anwendung des Varianzquotiententests*: U - und D -Optimalität. D -optimale Versuchspläne bei einfacher Blockbildung. Verallgemeinerte Youden-Rechtecke. D -optimale Versuchspläne bei zweifacher Blockbildung. — *Anhang*: Symmetrie, Idempotenz und Definitheit reeller Matrizen. Das Kroneckerprodukt reeller Matrizen. Eigenschaften von $\mathcal{C}$ -Matrizen.

Serge LANG. — **Cyclotomic fields.** — Graduate texts in mathematics. vol. 59. — Un vol. relié, $17,5 \times 24,5$, de XI, 253 p. — Prix: DM 38.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Character sums: Character sums over finite fields. Stickelberger's theorem. Relations in the ideal classes. Jacobi sums as Hecke characters. Gauss sums over extension fields. Application to the Fermat curve. — *Stickelberger ideals and Bernoulli distributions*: The index of the first Stickelberger ideal. Bernoulli numbers. Integral Stickelberger ideals. General comments on indices. The index for k even. The index for k odd. Twistings and Stickelberger ideals. Stickelberger elements as distributions. Universal distributions. The Davenport-Hasse distribution. — *Complex analytic class number formulas*: Gauss sums on $\mathbb{Z}/m\mathbb{Z}$. Primitive L -series. Decomposition of L -series. The (± 1) eigenspaces. Cyclotomic units. The Dedekind determinant. Bounds for class numbers. — *The p -adic L -function*: Measures and power series. Operations on measures and power series. The Mellin transform and p -adic L -function. The p -adic regulator. The formal Leopoldt

transform. The p -adic Leopoldt transform. — *Iwasawa theory and ideal class groups*: The Iwasawa algebra. Weierstrass preparation theorem. Modules over $Z_p[[X]]$. Z_p -extensions and ideal class groups. The maximal p -abelian p -ramified extension. The Galois group as module over the Iwasawa algebra. — *Kummer theory over cyclotomic Z_p -extensions*: The cyclotomic Z_p -extension. The maximal p -abelian p -ramified extension of the cyclotomic Z_p -extension. Cyclotomic units as a universal distribution. The Leopoldt-Iwasawa theorem and the Vandiver conjecture. — *Iwasawa theory of local units*: The Kummer-Takagi exponents. Projective limit of the unit groups. A basis for $U(\chi)$ over Λ . The Coates-Wiles homomorphism. The closure of the cyclotomic units. — *Lubin-Tate theory*: Lubin-Tate groups. Formal p -adic multiplication. Changing the prime. The reciprocity law. The Kummer pairing. The logarithm. Application of the logarithm to the local symbol. — *Explicit reciprocity laws*: Statement of the reciprocity laws. The logarithmic derivative. A local pairing with the logarithmic derivative. The main lemma for highly divisible x and $\alpha = \chi_n$. The main theorem for the symbol $\langle \chi, \chi_n \rangle_n$. The main theorem for divisible χ and $\alpha = \text{unit}$. End of the proof of the main theorems.

Harold J. KUSHNER, Dean S. CLARK. — **Stochastic approximation methods for constrained and unconstrained systems**. — Applied mathematical sciences, vol. 26. — Un vol. broché, $15,5 \times 23,5$ de x, 261 p. — Prix: DM 26.40. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Introduction: General remarks. The Robbins-Monro process. A "continuous" process version of section 2. Regulation of a dynamical system; a simple example. Function minimization: the Kiefer-Wolfowitz procedure. Constrained problems. An economics example. — *Convergence w.p.l. for unconstrained systems*: Preliminaries and motivation. The Robbins-Monro and Kiefer-Wolfowitz algorithms: conditions and discussion. Convergence proofs for RM and KW-like procedures. A general Robbins-Monro process: "exogenous noise". A general RM process; state dependent noise. Some applications. Mensov-Rademacher estimates. — *Weak convergence of probability measures*. — *Weak convergence for unconstrained systems*: Conditions and general discussion. The Robbins-Monro and Kiefer-Wolfowitz procedures. A general Robbins-Monro process: exogenous noise. A general RM process: state dependent noise. The identification problem. A counter-example to tightness. Boundedness of $\{X_n\}$ and tightness of $\{X^n(\cdot)\}$. — *Convergence w.p.l. for constrained systems*: A penalty-multiplier algorithm for equality constraints. A Lagrangian method for inequality constraints. A projective algorithm. A penalty-multiplier method for inequality constraints. — *Weak convergence: constrained systems*: A multiplier type algorithm for equality constraints. The Lagrangian method. A projection algorithm. A penalty-multiplier algorithm for inequality constraints. — *Rates of convergence*: The problem formulation. Conditions and discussions. Rates of convergence for case 1, the KW algorithm. Discussion of rates of convergence for two KW algorithms.

P. R. HALMOS, V. S. SUNDER. — **Bounded integral operators on L^2 spaces**. — Ergebnisse der Mathematik und ihrer Grenzgebiete, Band 96. — Un vol. relié, 17×25 , de xv, 132 p. — Prix: DM 33.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Preface. — Conventions. — Prerequisites. — Measure spaces. — Kernels. — Domains. — Boundedness. — Examples. — Isomorphisms. — Algebra. — Uniqueness. — Tensors. — Absolute boundedness. — Carleman kernels. — Compactness. — $\langle 2,1 \rangle$ compactness. — Essential spectrum. — Characterization. — Universality. — Recognition. —

Appendix A : Finiteness and countability conditions. — *Appendix B* : Pointwise unbounded bounded kernels. — *Appendix C* : Riemann-Lebesgue lemma.

Lynn Arthur STEEN, J. Arthur SEEBACH, Jr. — **Counterexamples in topology**. — Second edition. — Un vol. broché, $15,5 \times 23,5$ de xi, 244 p. — Prix: DM 26.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Basic definitions : General introduction. Separation axioms. Compactness. Connectedness. Metric spaces. — *Counterexamples* : Finite discrete topology. Countable discrete topology. Uncountable discrete topology. Indiscrete topology. Partition topology. Odd-even topology. Deleted integer topology. Finite particular point topology. Countable particular point topology. Uncountable particular point topology. Sierpinski space. Closed extension topology. Finite excluded point topology. Countable excluded point topology. Uncountable excluded point topology. Open extension topology. Either-or topology. Finite complement topology on a countable space ... on an uncountable space. Countable complement topology. Double pointed countable complement topology. Compact complement topology. Countable Fort space. Uncountable Fort space. Fortissimo space. Arens-Fort space. Modified Fort space. Euclidean topology. The Cantor set. The rational numbers. The irrational numbers. Special subsets of the real line. Special subsets of the plane. One point compactification topology. One point compactification of the rationals. Hilbert space. Fréchet space. Hilbert cube. Order topology. Open ordinal space $[0, \Gamma)$ ($\Gamma < \Omega$). Open ordinal space $[0, \Omega)$. Closed ordinal space $(0, \Omega)$. Uncountable discrete ordinal space. The long line. The extended long line. An altered long line. Lexicographic ordering on the unit square. Right order topology. Right order topology on R . Right half-open interval topology. Nested interval topology. Overlapping interval topology. Interlocking interval topology. Hjalmar Ekdal topology. Prime ideal topology. Divisor topology. Evenly spaced integer topology. The p -adic topology on Z . Relatively prime integer topology. Prime integer topology. Double pointed reals. Countable complement extension topology. Smirnov's deleted sequence topology. Rational sequence topology. Indiscrete rational extension of R . Indiscrete irrational extension of R . Pointed rational extension of R . Pointed irrational extension of R . Discrete rational extension of R . Discrete irrational extension of R . Rational extension in the plane. Telophase topology. Double origin topology. Irrational slope topology. Deleted diameter topology. Deleted radius topology. Half-disc topology. Irregular lattice topology. Arens square. Simplified Arens square. Niemytzki's tangent disc topology. Metrizable tangent disc topology. Sorgenfrey's half-open square topology. Michael's product topology. Tychonoff plank. Deleted Tychonoff plank. Alexandroff plank. Dieudonné plank. Tychonoff corkscrew. Deleted Tychonoff corkscrew. Hewitt's condensed corkscrew. Thomas' plank. Thomas' corkscrew. Weak parallel line topology. Strong parallel line topology. Concentric circles. Appert space. Maximal compact topology. Minimal Hausdorff topology. Alexandroff square. Z^Z . Uncountable products of Z^+ . Baire product metric on R^ω . I^I . $(0, \Omega) \times I^I$. Helly space. $C[0, 1]$. Box product topology on R^ω . Stone-Cech compactification. Stone-Cech compactification of the integers. Novak space. Strong ultrafilter topology. Single ultrafilter topology. Nested rectangles. Topologists' sine curve. Closed topologist's sine curve. Extended topologist's sine curve. The infinite broom. The closed infinite broom. The integer broom. Nested angles. The infinite cage. Bernstein's connected sets. Gustin's sequence space. Roy's lattice space. Roy's lattice subspace. Cantor's leaky tent. Cantor's teepee. A pseudo-arc. Miller's biconnected set. Wheel without its hub. Tangora's connected space. Bounded metrics. Sierpinski's metric space. Duncan's space. Cauchy completion. Hausdorff's metric topology. The post office metric. The radial metric. Radial interval topology. Bing's discrete extension space. Michael's closed subspace. — *Metrization theory*. — *Appendices*.

Journées d'analyse non linéaire. — Proceedings, Besançon, France, June 1977. — Edité par P. Bénilan et J. Robert. — Lecture Notes in Mathematics, vol. 665. — Un vol. broché, $16,5 \times 24,5$, de viii, 256 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

H. Attouch: Convergence de fonctionnelles convexes. — *J. M. Ball, R. J. Knops, J. E. Marsden*: Two examples in nonlinear elasticity. — *A. Damlamian*: Sur certaines équations quasi-linéaires de type « divergentielle » d'ordre arbitraire. — *G. Duvaut*: Homogénéisation des plaques à structure périodique en théorie non linéaire de Von Karman. — *A. Fougères, J. G. Peralba*: Application au calcul des variations de l'optimisation intégrale convexe. — *J. P. Gossez*: Sur certains problèmes de Dirichlet fortement non linéaires à la résonance. — *P. Hess*: Perturbations non linéaires de problèmes linéaires à la résonance: existence de multiples solutions. — *M. T. Lacroix*: Echelle d'espaces intermédiaires entre un espace de Sobolev-Orlicz et un espace d'Orlicz. Trace d'espaces de Sobolev-Orlicz avec poids. — *U. Mosco*: Sur l'existence de la solution régulière de l'inéquation quasi-variationnelle non linéaire du contrôle optimal impulsif et continu. — *O. A. Oleinik*: On the Navier-Stokes equation in a domain with the moving boundary. — *L. A. Peletier*: A nonlinear eigenvalue problem occurring in population genetics. — *J. P. Puel*: Un problème de valeur propre non linéaire et de frontière libre. — *J. Simon*: Régularité de la solution d'une équation non linéaire dans $\mathbf{R}^N$. — *L. Tartar*: Une nouvelle méthode de résolution d'équations aux dérivées partielles non linéaires. — *J. R. L. Webb*: Strongly nonlinear elliptic equations.

Algebraic and geometric topology. — Proceedings of a symposium held at Santa Barbara in honor of Raymond L. Wilder, July 25-29, 1977. — Edited by Kenneth C. Millett. — Lecture Notes in Mathematics, vol. 664. — Un vol. broché, $16,5 \times 24,5$, de x, 240 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

HISTORICAL PAPERS: *F. Burton Jones*: Wilder on connectedness. *Frank Raymond*: R. L. Wilder's work on generalized manifolds. An appreciation. *Lucille Whyburn*: R. L. Moore's first doctoral student at Texas. — RESEARCH PAPERS: *Robert F. Brown*: A homological characterization of inner automorphisms of compact Lie groups. *Gregory W. Brumfiel*: Realizing homology classes by PL manifolds. *Leon W. Cohen*: Topology and measure. *Morton Curtis and George Terrell*: HP^∞ , Genuine and counterfeit. *S. Ferry*: On a space of group actions. *Michael H. Freedman*: Remarks on the solution of first degree equations in groups. *Morris W. Hirsch*: Flat manifolds and the cohomology of groups. — *Lowell Jones*: Two characteristic classes and Smith theory. *Charles N. Maxwell*: The degree of multiple-valued maps of spheres. *Clint McCrory*: Stratified general position. *M. L. Michelsohn*: Clifford bundles, spinor bundles and Dirac operators. *Walter D. Neumann and Frank Raymond*: Seifert manifolds, plumbing, μ -invariant and orientation reversing maps. *Ted Petrie*: G surgery I: a survey. *Martin Scharlemann*: Smooth CE maps and smooth homeomorphism.

Equations aux dérivées partielles. — Proceedings, Saint-Jean-de-Monts, June 1-4, 1977. — Edité par Pham The Lai. — Lecture Notes in Mathematics, vol. 660. — Un vol. broché, $16,5 \times 24,5$, de vi, 216 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

M. S. Baouendi et C. Goulaouic: Le théorème de Nishida pour le problème de Cauchy abstrait par une méthode de point fixe. — *M. S. Baouendi et E. C. Zachmanoglou*: Unique continuation theorems for solutions of partial differential equations and inequal-

ities. — *P. Bolley, J. Camus et B. Helffer* : Hypoellipticité pour une équation d'évolution abstraite du second ordre. — *P. Bolley, J. Camus et Pham The Lai* : Noyau, résolvante et valeurs propres d'une classe d'opérateurs elliptiques et dégénérés. — *J. M. Bony* : Prolongement à la frontière des solutions du problème des dérivées obliques. — *E. Croc, Y. Dermenjian et V. Iftimie* : Une classe d'opérateurs pseudodifférentiels partiellement hypoelliptique-analytiques. — *A. Fitouhi* : Fonction zeta d'Epstein pour un opérateur elliptique qui dégénère dans la direction normale (exposé par J. Faraut). — *T. Hardin et A. Laville* : Une généralisation du théorème de propagation des singularités pour les opérateurs à symbole principal réel. — *B. Helffer* : Quelques exemples d'opérateurs pseudodifférentiels localement résolubles. — *M. Kashiwara et P. Schapira* : Problème de Cauchy pour les systèmes d'équations différentielles et microdifférentielles dans le domaine complexe. — *J. Leray* : Analyse lagrangienne et mécanique quantique (notions apparentées à celle de développement asymptotique et d'indice de Maslov). — *C. Mattera* : Théorème de traces pour une classe d'espaces de Sobolev singuliers. — *A. Menikoff et J. Sjöstrand* : The eigenvalues of hypoelliptic operators. — *Pham The Lai et D. Robert* : Valeurs propres d'une classe d'équations différentielles singulières sur une demi-droite. — *A. Piriou* : Propagation et réflexion de la propriété de transmission des distributions de Fourier. — *J. Sjöstrand* : Sur certains complexes d'opérateurs pseudodifférentiels. — *J. Vaillant* : Propriété de symétrie des matrices localisées d'une matrice fortement hyperbolique en un point multiple. — *C. Wagschal* : Problème de Cauchy à caractéristiques multiples dans les classes de Gevrey.

J. F. BERGLUND, H. D. JUNGHEHN, P. MILNES. — Compact right topological semi-groups and generalizations of almost periodicity. — Lectures notes in mathematics, vol. 663. — Un vol. broché, 16,5 × 24,4, de x, 243 p. — Prix: DM 27.00. — Springer Verlag: Berlin/Heidelberg/New York, 1978.

Preliminaries : Semigroups. Actions. Means. Semigroups of means. — *The structure of compact semigroups* : Algebra. Compact right topological semigroups. Compact right topological groups. Compact affine right topological semigroups. Support of means. — *Subspaces of $C(S)$ and compactifications of S* : General theory of affine compactifications. General theory of non-affine compactifications. The *WLUC*-affine compactification. The *LMC*-compactification. The *LUC*-compactification. The *K*-compactification. The *CK*-affine compactification. The *WAP*-compactification. The *AP*-compactification. The *SAP*-compactification. The *LWP*-compactification. The *KWP*-compactification. The *CKWP*-affine compactification. Inclusion relationships among the subspaces. Extension of functions. Direct sums of subspaces of $C(S)$. — *Fixed points and left invariant means on subspaces of $C(S)$* : Fixed points of affine flows and left invariant means. Fixed points of flows and multiplicative left invariant means. — *Examples* : Structure examples. Extension examples and examples to show the subspaces can be different. — *Appendix A* : An approach through category theory. — *Appendix B* : Synopsis.

Higher set theory. — Proceedings, Oberwolfach, Germany, April 13-23, 1977. — Edited by G. H. Müller and D. S. Scott. — Lecture Notes in Mathematics, vol. 669. — Un vol. broché, 17,5 × 24,5, de xii, 476 p. — Prix: DM 42.50. — Springer Verlag Berlin/Heidelberg/New York, 1978.

U. Felgner, T. B. Flannagen : Wellordered subclasses of proper classes. — *H. Friedman* : A proof of foundation from axioms of cumulation. Categoricity with respect to ordinals. Classically and intuitionistically provably recursive functions. — *K. Gloede* : Hierarchies

of sets definable by means of infinitary languages. — *P. Hájek* : Some results on degrees of constructibility. — *H. R. Jervell* : Constructive universes I. — *A. Kanamori, M. Magidor* : The evolution of large cardinal axioms in set theory. — *A. S. Kechris* : Forcing in analysis. — *A. Louveau* : Recursiveness and compactness. — *W. Maass* : Fine structure theory of the constructible universe in α - and β recursion theory. — *W. Marek, P. Zbierski* : On a class of models of the n^{th} order arithmetic. — *A. R. D. Mathias* : $0^\#$ and the p -point problem. — *K. Mc Aloon* : A combinatorial characterization of inaccessible cardinals. — *M. Srebrny* : Singular cardinals and analytic games. — *K. Steffens* : Regressive functions and stationary sets. — *P. Štěpánek* : Cardinals in the inner model HOD. — *J. Stern* : Partitions of the real line into χ_1 , closed sets. — *G. Takeuti* : Gödel numbers of product spaces. — *J. Truss* : A note on increasing sequences of constructibility degrees.

The structure of attractors in dynamical systems. — Proceedings, North Dakota State University, June 20-24, 1977. — Edited by N. G. Markley, J. C. Martin and W. Perrizo. — Lecture Notes in Mathematics, vol. 668. — Un vol. broché, 16,5 × 24,5, de vi, 264 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Roy Adler and Brian Marcus : Finitistic coding for shifts of finite type. — *Steve Batterson* : Periodic points and Lefschetz numbers. — *Rufus Bowen* : Entropy and the fundamental group. — *C. Conley and Joel Smoller* : Isolated invariant sets of parameterized systems of differential equations. — *James H. Curry and James A. Yorke* : A transition from Hopf bifurcation to chaos: computer experiments with maps on R^2 . — *Robert L. Devaney* : Transverse heteroclinic orbits in the anisotropic Kepler problem. — *Douglas Dokken* : A note on a distality theorem of C. C. Moore. — *Robert Easton* : Chain transitivity and the domain of influence of an invariant set. — *Robert Ellis* : Cohomology of flows. — *John Franks* : The structure of Smale diffeomorphisms. — *Hillel Furstenberg and Benjamin Weiss* : The finite multipliers of infinite ergodic transformations. — *Leon W. Green* : Applications of ergodic theory to geometry. — *Harold M. Hastings* : On expansive homeomorphisms of the infinite torus. Shape theory and dynamical systems. — *Russell A. Johnson* : On a theorem of Sell. — *H. B. Keynes and D. Newton* : Lifting in non-Abelian (G, τ) -extensions. — *Nelson G. Markley and Michael E. Paul* : Recipe minimal sets. — *Marion Rachel Palmer, William Parry and Peter Walters* : Large sets of endomorphisms and of g -measures. — *William Perrizo* : A linearization process for flows. — *Clark Robinson* : Introduction to the closing lemma. — *Peter Walters* : On the pseudo orbit tracing property and its relationship to stability. — *F. Wesley Wilson, jr.* : A reformulation of Coleman's conjecture concerning the local conjugacy of topologically hyperbolic singular points. — *Robert J. Zimmer* : Ergodic actions and stochastic processes on groups and homogeneous spaces.

Fonctions de plusieurs variables complexes III. — Séminaire François Norguet, octobre 1975-juin 1977. — Edité par François Norguet. — Lecture Notes in Mathematics, vol. 670. — Un vol. broché, 16,5 × 24,5, de xii, 394 p. — Prix: DM 39.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

C. Banica : Homologie et dualité en géométrie analytique complexe. — *G. Roos* : Recollement universel de noyaux. Sur les intégrales premières de certains feuilletages analytiques complexes. — *M. Suzuki* : Sur les intégrales premières de certains feuilletages analytiques complexes. Sur les opérations holomorphes de C et de C^* sur un espace de Stein. — *Z. Mebkhout* : Cohomologie locale d'une hypersurface. — *B. Moishezon* : Topological questions in the theory of algebraic surfaces. — *J. L. Ermine* : Conjecture

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Jacek GILEWICZ. — **Approximants de Padé.** — Lecture notes in mathematics, vol. 667. — Un vol. broché, $16,5 \times 24,5$, de xiv, 511 p. — Prix: DM 43.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Rappels sur les suites numériques. — Suites et fonctions totalement monotones. — Fonctions de Stieltjes et fonctions de classe $\mathcal{S}$. — Fractions continues. — Approximants de Padé: théorie algébrique. — Approximants de Padé et ε -algorithme. Théorie de la convergence. — Calcul des approximants de Padé, des tables de Padé et des tables c . — Problème du meilleur approximant de Padé dans un ensemble fini d'approximants. — Quelques applications des approximants de Padé en analyse numérique. — Conclusions.

Bernard BEAUZAMY. — **Espaces d'interpolation réels: topologie et géométrie.** — Lecture Notes in Mathematics, vol. 666. — Un vol. broché, $16,5 \times 24,5$, de x, 104 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Définition des espaces d'interpolation. — Propriétés topologiques des espaces d'interpolation. — Méthodes géométriques pour l'étude des espaces d'interpolation. — Dualité et réitération du procédé d'interpolation. Super-propriétés et propriétés métriques des espaces d'interpolation. — Meilleures représentations et propriétés métriques non uniformes. — Quelques « défauts » du procédé d'interpolation.

Algebraic topology. — Proceedings, University of British Columbia, Vancouver, August 1977. — Edited by P. Hoffman, R. Piccinini and D. Sjerve. — Lecture Notes in Mathematics, vol. 673. — Un vol. broché, $16,5 \times 24,5$, de vi, 278 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

RATIONAL HOMOTOPY THEORY: *R. Douglas* : The uniqueness of coproduct decompositions for algebras over a field. — *J. Stasheff* : Rational homotopy-obstruction and perturbation theory. — COHOMOLOGY THEORIES: BUNDLE THEORY: — *A. Dold* : Geometric cobordism and the fixed point transfer. — *H. Glover, B. Homer and G. Mislin* : Immersions in manifolds of positive weights. — *R. Kane* : BP homology and finite H -spaces. — *F. Sigrist and U. Suter* (with the collaboration of P. J. Erard): On immersions $CP^n \xrightarrow{\sigma} R^{4n-2\alpha(n)}$. — *F. Sigrist and U. Suter* : On the exponent and the order of the groups $J(X)$. — *V. Snaith* : Stable decompositions of classifying spaces with applications to algebraic cobordism

theories. — HOMOTOPY THEORY; NILPOTENT SPACES; LOCALIZATION: *P. Booth, P. Heath and R. Piccinini*: Fibre preserving maps and functional spaces. Characterizing universal fibrations. — *P. Hilton*: On orbit sets for group actions and localization. — *P. Hilton, G. Mislin, J. Roitberg and R. Steiner*: On free maps and free homotopies into nilpotent spaces. — *G. Mislin*: Conditions for finite domination for certain complexes. — *J. Segal*: An introduction to shape theory. — *M. Tangora*: Generating Curtis tables. — GROUP COHOMOLOGY; ACTIONS: *A. Liulevicius*: Flag manifolds and homotopy rigidity of linear actions. — *D. Sjerve*: Generalized homological reduction theorems.

R. T. SMYTHE, John C. WIERMAN. — **First-passage percolation on the square lattice.** — Lecture Notes in Mathematics, vol. 671. — Un vol. broché, 17×25 , de VIII, 196 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Introduction. — Preliminaries. — Bernoulli percolation. — Definition of the basic processes and the existence of routes. — Convergence of the first-passage processes. — Renewal theory for percolation processes. — The time constant. — Route length and the height process. — Other percolation models on the square lattice. — Conjectures and open problems. — *Appendix A*: The FKG inequality. — *Appendix B*: Ergodic theorems for subadditive processes.

Robert L. TAYLOR. — **Stochastic convergence of weighted sums of random elements in linear spaces.** — Lecture notes in mathematics, vol. 672. — Un vol. broché, 17×25 , de VII, 216 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Mathematical preliminaries. — Random elements in linear spaces. — Laws of large numbers, uncorrelation, and convergence of weighted sums of random variables. — Laws of large numbers in normed linear spaces. — Convergence of weighted sums in normed linear spaces. — Randomly weighted sums. — Laws of large numbers in $D[0, 1]$. — Possible applications.

Zbigniew FIEDOROWICZ, Stewart PRIDDY. — **Homology of classical groups over finite fields and their associated infinite loop spaces.** — Lecture notes in mathematics, 674. — Un vol. broché, 17×25 , de VI, 434 p. — Prix: DM 39.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Infinite loop spaces associated with ImJ : The real image of J spaces. The mod-2 homology of $JO(q)$. The symplectic and complex image of J spaces. The odd primary homology of $JO(q)$. The odd primary homology of $JSp(q)$ and $JU(\pm q)$. The integral cohomology of $JO(q)$. The integral cohomology of $JSp(q)$ and $JU(\pm q)$. — *Permutative categories of classical groups over finite fields*: Permutative categories and their associated infinite loop spaces. The orthogonal groups and their subgroups. Quadratic forms and extraordinary orthogonal groups. Spinor groups over finite fields. The general linear, symplectic and unitary groups. Orthogonal groups over finite fields of characteristic 2. Permutative functors associated with the classical groups. — *K-theory of finite fields and the ImJ spaces*: The Brauer lift. The main results. Mod p behavior of the classical groups. General pattern of arguments at noncharacteristic primes: the Brauer lift. Algebraic closures of finite fields. — *Calculations at the prime 2*. — *Calculations at odd primes*. — *The homology of certain finite groups*. — *Detection theorems at the prime 2*. — *Detection theorems at odd primes*. — *Homology operations associated with the classical groups*. — *Multiplicative homology operations associated with the orthogonal groups*.

JANOS GALAMBOS, SAMUEL KOTZ. — **Characterizations of probability distributions: a unified approach with an emphasis on exponential and related models.** — Lecture Notes in Mathematics, vol. 675. — Un vol. broché, 17 × 25, de viii, 169 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Preliminaries and basic results: Introduction. — Preliminaries. — The classical case of the lack of memory property. — Motivations (applications of characterization theorems in model building). — Basic properties of the exponential distribution. Monotonic transformations of the exponential distribution. — *Characterizations based on truncated distributions*: Extended forms of the lack of memory property. A stability theorem. Characterizations based on conditional expected values. — *Characterizations by properties of order statistics*: Characterizations by distributional properties. Independence of functions of order statistics. Characterizations through moment assumptions. — *Characterization of the Poisson process*: Basic properties of Poisson processes. Characterizations based on age and residual life. Rarefactions, geometric compounding and damage models. — *Characterizations of multivariate exponential distribution*: Bivariate extensions based on LMP. The multivariate Marshall-Olkin exponential distribution and its extension. Characterization of MVE distributions based on hazard rate properties. — *Miscellaneous results*: Characterizations by statistical properties. Records. Further results in terms of order statistics. Some additional characterizations.

Differential geometrical methods in mathematical physics II. — Proceedings, University of Bonn, July 13-16, 1977. — Edited by K. Bleuler, H. R. Petry and A. Reetz. — Lecture Notes in Mathematics, vol. 676. — Un vol. broché, 17 × 25, de vi, 626 p. — Prix: DM 50.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

INTRODUCTION: *S. Sternberg*: On the role of field theories in our physical conception of geometry. — GAUGE THEORIES: *M. E. Mayer*: Characteristic classes and solutions of gauge theories. *M. Carmeli*: Classification of classical Yang-Mills fields. *R. N. Sen*: Bundle representations and their applications. *T. T. Wu*: Introduction to gauge theory. *W. Thirring and R. Wallner*: The use of exterior forms in field theory. *A. O. Barut*: Electromagnetic fields on manifolds: Betti numbers, monopoles and strings, minimal coupling. *Y. Ne'eman*: Gravity is the gauge theory of the parallel-transport. Modification of the Poincaré group. *W. Greub and H. R. Petry*: On the lifting of structure groups. *H. R. Petry*: On the non-uniqueness of spin structure in superconductivity. *V. de Alfaro, S. Fubini and G. Furlan*: Conformal invariance in field theory. — GEOMETRIC QUANTIZATION AND SYMPLECTIC STRUCTURES: *N. Woodhouse*: Geometric quantization and the WKB approximation. *J. H. Rawnsley*: Some properties of half forms. *J. Cxyz*: On some approach to geometric quantization. *J. A. Wolf*: Representations associated to minimal co-adjoint orbits. — *D. J. Simms*: On the Schrödinger equation given by geometric quantization. — *J. Sniatycki*: Application of geometric quantization in quantum mechanics. — *J. M. Souriau*: Thermodynamique et géométrie. *S. Sternberg*: Some preliminary remarks on the formal variational calculus of Gel'fand and Dikii. — *P. L. Garcia and A. Perez-Rendon*: Reducibility of the symplectic structure of minimal interactions. *M. Moshinsky and T. H. Seligman*: Ambiguities in canonical transformations of classical systems and the spectra of quantum observables. — QUANTUM FIELD THEORY AND GENERAL RELATIVITY: *C. J. Isham*: Quantum field theory in curved spacetimes, a general mathematical framework. *G. W. Gibbons*: On functional integrals in curved spacetime. *P. Hajicek*: Observables for quantum fields on curved background. *P. Spindel*: Quantization of fields on a curved background. *S. Deser*: Supergravity. *V. Kac*: Representations of classical Lie superalgebras.

Séminaire Bourbaki, vol. 1976/77: exposés 489-506. — Lecture notes in mathematics, vol. 677. — Un vol. broché, 17 × 25, de iv, 264 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Borho, W.: Recent advances in enveloping algebras of semi-simple Lie algebras [a report on work of N. Conze et al]. — *Duistermaat, J.*: The light in the neighborhood of a caustic. — *Harvey, W. J.*: Kleinian groups. — *Raynaud, M.*: Faisceaux amples et très amples. — *Stern, J.*: Le problème des cardinaux singuliers. — *Bony, J.-M.*: Hyperfonctions et équations aux dérivées partielles. — *Cartier, P.*: Spectre de l'équation de Schrödinger, application à la stabilité de la matière. — *MacPherson, R.*: The combinatorial formula of Gabrielov, Gelfand and Losik for the first Pontrjagin class. — *Rais, M.*: Opérateurs différentiels bi-invariants. — *Roussarie, R.*: Constructions de feuilletages. — *Van de Ven, A.*: Some recent results on surfaces of general type. — *Hirsch, F.*: Opérateurs carré du champ. — *Janko, Z.*: On the finite simple groups. — *Lang, S.*: Sur la conjecture de Birch-Swinnerton Dyer. — *Malliavin, P.*: Travaux de H. Skoda sur la classe de Nevanlinna. — *Tits, J.*: Groupes de Whitehead de groupes algébriques simples sur un corps. — *Van de Ven, A.*: On the Enriques classification of algebraic surfaces.

D. DACUNHA-CASTELLE, H. HEYER, B. ROYNETTE. — **Ecole d'été de probabilités de Saint-Flour VII-1977.** — Edité par P. L. Hennequin. — Lecture notes in mathematics, vol. 678. — Un vol. broché, 17 × 25, de xi, 379 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

D. Dacunha-Castelle: *Vitesse de convergence pour certains problèmes statistiques*: Notions sur l'estimation d'un paramètre. Approximation de la vraisemblance d'un processus gaussien à l'aide de la densité spectrale. Inégalités sur les couples de probabilités. Vitesse d'estimation pour un paramètre variant dans un espace métrique de dimension finie. Problèmes de dimension métrique infinie: estimation des densités et applications. Le problème classique — fonctions de vraisemblance asymptotiquement normales. Exemples de problèmes à vitesse supérieure à $\sqrt{n}$. Point de vue adaptif des problèmes d'estimation « non paramétriques ». Tests de vraisemblance. — *H. Heyer*: *Semi-groupes de convolution sur un groupe localement compact et applications à la théorie des probabilités*: Les éléments. Structure des semi-groupes de convolution. Applications. — *B. Roynette*: *Marches aléatoires sur les groupes de Lie*: Généralités sur les marches aléatoires. Récurrence et transience des états. Utilisation de la transformée de Fourier. Propriété des groupes récurrents. Marche sur un espace homogène. La méthode de désintégration. Utilisation du théorème central limite. La méthode des fonctions barrières. Marches aléatoires sur un espace homogène du groupe des déplacements. Une loi du logarithme itéré pour le groupe d'Heisenberg. Utilisation de la transformée de Fourier (suite).

Numerical treatment of differential equations in applications. — Proceedings, Oberwolfach, Germany, December 1977. — Edited by R. Ansorge and W. Törnig. — Lecture Notes in Mathematics, vol. 679. — Un vol. broché, 17 × 25, de ix, 163 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

E. Bohl: On two boundary value problems in nonlinear elasticity from a numerical viewpoint. — *S. F. McCormick*: A revised mesh refinement strategy for Newton's method applied to nonlinear two-point boundary value problems. — *W. Elben and W. Wolff*: Problems in applying the SOR-method to the solution of the Maxwell's time dependent equations. — *H. Kossman*: Boundary-value technique for the numerical solution of periodic parabolic problems. — *H. Kreth*: Time-discretisations for nonlinear evolution equations. — *J. D. Lambert*: Frequency fitting in the numerical solution of ordinary differential equations. — *B. Mehri*: Forced nonlinear oscillation for certain third order

differential equation. — *J. J. H. Miller* : Sufficient conditions for the convergence, uniformly in ε , of a three point difference scheme for a singular perturbation problem. — *W. Müller* : Experiences on numerical calculation of fields. — *K. Nixdorff* : An application of the differential equations of the sound ray. — *P. Nørsett* : On using the Du Fort Frankel scheme for determination of the velocity profile in turbulent boundary layer along an oscillating wall. — *E. L. Ortiz* : On the numerical solution of nonlinear and functional differential equations with the Tau method. — *R. Rautmann* : On the uniqueness and stability of weak solutions of a Fokker-Planck-Vlasov equation. — *H. J. Wirz* : On iterative solution methods for systems of partial differential equations.

Mathematical control theory: proceedings, Canberra, Australia, August 23-September 2, 1977. — Edited by W. A. Coppel. — Lecture notes in mathematics, vol. 680. — Un vol. broché, 17 × 25, de ix, 257 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

K. J. Åström : Stochastic control problems. — *R. W. Brockett* : Lie theory, functional expansions, and necessary conditions in singular optimal control. — *H. Halkin* : Necessary conditions for optimal control problems with differentiable or nondifferentiable data. — *P. E. Kloeden* : General control systems. — *I. Kluvanek & G. Knowles* : The bang-bang principle. — *J. B. Moore* : Statistical filtering. — *R. E. O'Malley, Jr.* : Singular perturbations and optimal control. — *R. T. Rockafellar* : Duality in optimal control.

Séminaire de théorie du potentiel, Paris, n° 3. — Directeurs: M. Brelot, G. Choquet et J. Deny. — Rédacteurs: F. Hirsch et G. Mokobodzki. — Lecture Notes in Mathematics, vol. 681. — Un vol. broché, 17 × 25, de vii, 294 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

A. Ancona : Principe de l'enveloppe inférieure pour des potentiels pris par rapport à une forme de Dirichlet. — *J. M. Bismut* : Application de la théorie du potentiel à des problèmes de contrôle. — *M. Brelot* : Equation de Weinstein et potentiels de Marcel Riesz. — *F. Bronner* : Frontière de Martin des résolvantes récurrentes. — *D. Feyel* : Espaces complètement réticulés de pseudo-noyaux; applications aux résolvantes et aux semi-groupes complexes. Espaces de Banach fonctionnels adaptés; quasi-topologies et balayage. — *G. Forst* : Noyaux potentiels sur $\mathbf{R}_+$. — *F. Hirsch et J. C. Taylor* : Renouvellement et existence de résolvantes. — *T. Ikegami* : On the regularity of boundary points in a resolutive compactification of a harmonic space. — *G. Lumer* : Principe du maximum et équations d'évolution dans L^2 . — *M. Mastrangelo* : Laplacien fin de fonctions à moyenne convexe. — *G. Mokobodzki* : Sur l'algèbre contenue dans le domaine étendu d'un générateur infinitésimal. Sur l'opérateur de réduite (remarques sur un travail de J. M. Bismut). Espaces réticulés et algèbre de fonctions stables par composition avec les fonctions C^2 . — *A. de la Pradelle* : Cônes de potentiels dans des espaces de Banach adaptés et dualité. — *J.-P. Roth* : Les opérateurs elliptiques comme générateurs infinitésimaux de semi-groupes de Feller. — *E. P. Smyrnelis* : Polarité et effilement dans les espaces biharmoniques. Sur les fonctions hyperharmoniques d'ordre 2.

Variétés analytiques compactes: colloque, Nice, 19-23 septembre 1977. — Edité par Y. Hervier et A. Hirschowitz. — Lecture Notes in Mathematics, vol. 683. — Un vol. broché, 17 × 25, de v, 248 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

W. Barth & G. Elenwajg : Concernant la cohomologie des fibres algébriques stables sur $\mathbf{P}_n(\mathbf{C})$. — *E. Rees* : Some rank two bundles on $\mathbf{P}_n(\mathbf{C})$, whose Chern classes vanish.

G. Trautmann : Deformations of sheaves and bundles. — *Y. Hervier* : Déformations à un paramètre de variétés simples. — *C. Peters* : On the local Torelli theorem, a review of known results. — *V. P. Palamodov* : Moduli in versal deformations of complex spaces. — *P. Le Barz* : Géométrie énumérative pour les multisécantes. — *E. Rees and E. Thomas* : Complex cobordism and intersections of projective varieties. — *G. Dloussky* : Analyticité séparée et prolongement analytiques (d'après le dernier manuscrit de Rothstein). — *K. Stein* : Topological properties of holomorphic and meromorphic mappings. — *H. Holmann* : On the stability of holomorphic foliations with all leaves compact.

Elemer E. ROSINGER. — **Distributions and nonlinear partial differential equations.** — Lecture Notes in Mathematics, vol. 684. — Un vol. broché, 17 × 25, de xi, 146 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Associative, commutative algebras containing the distributions. — Dirac algebras containing the distributions. — Solutions of nonlinear partial differential equations, applications to nonlinear shock waves. — Quantum particle scattering in potentials positive powers of the Dirac δ distribution. — Products with Dirac distributions. — Linear independent families of Dirac distributions. — Support, local properties. — Necessary structure of the distribution multiplications.

Knot theory: proceedings, Plans-sur-Bex, Switzerland, 1977. — Edited by J. C. Hausmann. — Lecture Notes in Mathematics, vol. 685. — Un vol. broché, 17 × 25, de vii, 311 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

SURVEYS: *C. McA. Gordon* : Some aspects of classical knot theory. *M. Kervaire & Cl. Weber* : A survey of multidimensional knots. — KNOTS AND LINKS: *D. L. Goldsmith* : A linking invariant of classical link concordance. *J.-Cl. Hausmann* : Nœuds antisimples. — *L. H. Kauffman* : Signature of branched fibrations. *E. Vogt* : Cobordismus von Knoten. — ALGEBRAIC TOPICS RELATED TO KNOT THEORY: *C. Kearton* : Attempting to classify knot modules and their hermitian pairings. *J. Levine* : Some results on higher dimensional knot groups. (Appendix by Cl. Weber). *N. W. Stoltzfus* : Algebraic computations of the integral concordance and double null concordance group of knots. *H. F. Trotter* : Knots modules and Seifert matrices. *Cl. Weber* : Torsion dans les modules d'Alexander. — PROBLEMS: (collected by McA. Gordon).

G. D. JAMES. — **The representation theory of the symmetric groups.** — Lecture notes in mathematics, vol. 682. — Un vol. broché, 17 × 25, de v, 156 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Background from representation theory. The symmetric group. Diagrams, tableaux and tabloids. Specht modules. Examples. The character table of $\mathfrak{S}_n$. The Garnir relations. The standard basis of the Specht module. The branching theorem. p -regular partitions. The irreducible representations of $\mathfrak{S}_n$. Composition factors. Semistandard homomorphisms. Young's rule. Sequences. The Littlewood-Richardson rule. A Specht series for M^μ . Hooks and skew-hooks. The determinantal form. The hook formula for dimensions. The Murnaghan-Nakayama rule. Binomial coefficients. Some irreducible Specht modules. On the decomposition matrices of $\mathfrak{S}_n$. Young's orthogonal form. Representations of the general linear group. — *Appendix* : The decomposition matrices of the symmetric groups $\mathfrak{S}_n$ for the primes 2 and 3 with $n \leq 13$.

J. C. BURKILL. — **A first course in mathematical analysis.** — Reprint. — Un vol. broché, 14 × 22, de vi, 186 p. — Prix: £3.95. — Cambridge University Press, Cambridge/London New York/Melbourne, 1978.

Preface. — Numbers. — Sequences. — Continuous functions. — The differential calculus. — Infinite series. — The special functions of analysis. — The integral calculus. — Functions of several variables. — Notes on the exercises. — Index.

Serge LANG. — **Elliptic curves Diophantine analysis.** — Grundlehren der mathematischen Wissenschaften, Band 231. — Un vol. relié, 17 × 25, de xi, 261 p. — Prix: DM 68.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

GENERAL ALGEBRAIC THEORY: *Elliptic functions*: The Liouville theorems. The Weierstrass function. The addition theorem. Endomorphisms, automorphisms, and isomorphisms. Points of finite order. The sigma and zeta function. The Klein form and the Siegel-Neron function. q -expansions and products. — *The division equation*: The division polynomial. The algebraic formulas over $\mathbb{Z}$. Estimates for the coefficients. — *p -adic addition*: Addition near the origin. The Lutz-Nagell theorem. The formal group. The Neron function. The Tate curve. p -adic points of order p . — *Heights*: Basic properties. The infinite descent and Mordell-Weil theorem. Quasi-linear algebra. Quadraticity of the height. Linear dependence of algebraic points. Local decomposition of the height. — *Kummer theory*: $A_K/2A_K$ is finite. The Kummer pairing for elliptic curves. Second proof of the weak Mordell-Weil theorem. Kummer theory for the multiplicative group. Bashmakov's theorem. — *Integral points*: The equations $a\alpha + b\alpha' = 1$ in units. Reduction of integral points to the unit equation by Siegel's method. Chabauty's method. Reduction to the Weierstrass form. The Thue-Siegel curve. Curves of genus 0. Applications to curves of higher genus. Reduction to inequalities on elliptic logarithms. Appendix. — -APPROXIMATION OF LOGARITHMS: *Auxiliary results*: Heights and sizes. Linear equations. Estimates for derivatives. Feldman polynomials. Estimates for entire functions. The p -adic case. Introduction to the Baker method. — *The Baker-Feldman theorem*: Statement of the theorem. Main lemma and its application. Construction of the approximating function. Two estimates. Extrapolation on integral multiples. Extrapolation on fractional multiples. — *Linear combinations of elliptic logarithms*: Remarks on complex multiplication. Statement of the theorem. Main lemma and its application. Construction of the approximating function. Some estimates. Extrapolation on integral multiples. Extrapolation on fractional multiples. — *The Baker-Tijdeman theorem*: Statement of the theorem. Main lemma and its applications. Construction of the system of linear equations. Extrapolation on integral multiples. Extrapolation on fractional multiples. — *Refined inequalities*: Statement of the theorem. Main lemma and its application. Construction of the system of linear equations. Proof of the main lemma. Final descent.

Harvey COHN. — **A classical invitation to algebraic numbers and class fields.** — With 2 appendices by Olga Taussky: "Artin's 1932 Göttingen lectures on class field theory" and "Connections between algebraic number theory and integral matrices". — Universitext. — Un vol. broché, 15 × 24, de xiii, 328 p. Prix: DM 32.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Preliminaries: Introductory remarks on quadratic forms. Algebraic background. Quadratic Euclidean rings. Congruence classes. Polynomial rings. Dedekind domains. Extensions of Dedekind domains. Rational and elliptic functions. — *Ideal structure in*

number fields: Basis and discriminant. Prime factorization. Units. Geometry of numbers. Finite determination of class numbers. — *Introduction to class field theory*: Quadratic forms, rings and genera. Ray class structure and field, Hilbert class fields. Hilbert sequences. Discriminant and conductor. The Artin isomorphism. The zeta-function. — *Appendices* (by Olga Taussky).

V. I. ARNOLD. — **Mathematical methods of classical mechanics**. — Transl. by K. Vogtmann and A. Weinstein. — Graduate texts in mathematics, vol. 60. — Un vol. relié, 17 × 25, de x, 462 p. — Prix: DM 54.00. — Springer Verlag, New/Heidelberg/Berlin, 1978.

Newtonian mechanics: Experimental facts. Investigation of the equations of motion. — *Lagrangian mechanics*: Variational principles. Lagrangian mechanics on manifolds. Oscillations. Rigid bodies. — *Hamiltonian mechanics*: Differential forms. Symplectic manifolds. Canonical formalism. Introduction to perturbation theory. — *Appendices*: Riemannian curvature. Geodesics of left-invariant metrics on Lie groups and the hydrodynamics of an ideal fluid. Symplectic structure on algebraic manifolds. Contact structures. Dynamical systems with symmetries. Normal forms of hamiltonian systems near stationary points and closed trajectories. Perturbation theory of conditionally periodic motions and Kolmogorov's theorem. Poincaré's geometric theorem, its generalizations and applications. Multiplicities of characteristic frequencies, and ellipsoids depending on parameters. Short wave asymptotics. Lagrangian singularities. The Korteweg-de Vries equation.

Carl DE BOOR. — **A practical guide to splines**. — Applied mathematical sciences, vol. 27. — Un vol. broché, 15 × 24, de xxiv, 392 p. — Prix: DM 32.50. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Polynomial interpolation. Limitations of polynomial approximation. Piecewise linear approximation. Piecewise cubic interpolation; CUBSPL. Best approximation properties of complete spline interpolation and its error. Parabolic spline interpolation. A representation for piecewise polynomial functions; PPVALU, INTERV. The spaces P_k , ξ , ν and the truncated power basis. The representation of PP functions by B -splines. The stable evaluation of B -splines and splines; BSPLVB, BVALUE, BSPLPP. The B -spline series. Local spline approximation methods and the distance from splines; NEWNOT. Spline interpolation; SPLINT, SPLOPT. Smoothing and least-squares approximation; SMOOTH, L2APPR. The numerical solution of an ordinary differential equation by collocation; BSPLVD, COLLOC. Taut splines, periodic splines, cardinal splines and the approximations of curves; TAUTSP. Surface approximation by tensor products. — Appendix: Listing of SOLVEBLOK package. List of Fortran programs.

Werner GREUB. — **Multilinear algebra. 2nd edition**. — Universitext. — Un vol. broché, 15 × 24, de vii, 294 p. — Prix: DM 43.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Tensor products. — Tensor products of vector spaces with additional structure. — Tensor algebra. — Skew-symmetry and symmetry in the tensor algebra. — Exterior algebra. — Mixed exterior algebra. — Applications to linear transformations. — Skew and skew-hermitian transformations. — Symmetric tensor algebra. — Clifford algebras. — Representations of Clifford algebras. — Index.

Kendall E. ATKINSON. — **An introduction to numerical analysis.** — Un vol. relié, 18 × 24, de XIII, 587 p. — Prix: £12.55. — John Wiley and Sons, New York/Santa Barbara/Chichester/Brisbane/Toronto, 1978.

The sources and propagations of errors: Mathematical preliminaries. Computer representation of numbers. Sources of error. Propagation of errors. Stability in numerical analysis. — *Rootfinding for nonlinear equations:* Simple enclosure methods. The secant method. Newton's method. A general theory for one-point iteration methods. Aitken extrapolation for linearly convergent sequences. Error tests. The numerical evaluation of multiple roots. Brent's rootfinding algorithm. Roots of polynomials. Muller's method. Nonlinear systems of equations. Newton's method for nonlinear systems. — *Interpolation theory:* Polynomial interpolation theory. Newton divided differences. Finite differences and table-oriented interpolation formulas. Errors in data and forward differences. Further results on interpolation error. Hermite interpolation. Piecewise polynomial interpolation. — *Approximation of functions:* The Weierstrass theorem and Taylor's theorem. The minimax approximation problem. The least squares approximation problem. Orthogonal polynomials. The least squares approximation problem (continued). Economization of Taylor series. Minimax approximations. Near-minimax approximations. The Remes algorithm. — *Numerical integration:* The trapezoidal rule and Simpson's rule. Newton-Cotes integration formulas. Gaussian quadrature. Patterson's method. Asymptotic error formulas and their application. Adaptive numerical integration. Singular integrals. — *Numerical methods for differential equations:* Existence, uniqueness, and stability theory. Euler's method. Multistep methods. The midpoint method. The trapezoidal method. A low-order predictor-corrector algorithm. Derivation of higher-order multistep methods. Convergence and stability theory for multistep methods. Single-step and Runge-Kutta methods. — *Linear algebra:* Vector spaces, matrices, and linear systems. Eigenvalues and canonical forms for matrices. Vector and matrix norms. Convergence and perturbation theorems. — *Numerical solution of systems of linear equations:* Gaussian elimination. Pivoting and scaling in Gaussian elimination. Variants of Gaussian elimination. Error analysis. The residual correction method. Iteration methods. Error prediction and acceleration. The numerical solution of Poisson's equation. — *The matrix eigenvalue problem:* Eigenvalue location, error, and stability results. The power method. Orthogonal transformations using Householder matrices. The eigenvalues of a symmetric tridiagonal matrix. The *QR* method. The calculation of eigenvectors and inverse iteration.

A. BIJLSMA. — **Simultaneous approximations in transcendental number theory.** — Mathematical centre tracts, vol. 94. — Un vol. broché, 16 × 24, de VII, 101 p. — Prix: Dfl. 12.00. — Mathematisch Centrum, Amsterdam, 1978.

Introduction. — A test for the simultaneous approximability of a , b and a^b . — The non-interchangeability of a and b . — Simultaneous approximation measures for subsets of $\{a, b, P(a, b, a^b)\}$. — Many-variable analogues. — The p -adic case. — References. — Index of special symbols.

K. M. VAN HEE. — **Bayesian control of Markov chains.** — Mathematical centre tracts, vol. 95. — Un vol. broché, 16 × 24, de VII, 190 p. — Prix: Dfl. 23.00. — Mathematisch Centrum, Amsterdam, 1978.

Introduction: Historical perspective. Informal description of the model. Summary of the following chapters. Notations, conventions and prerequisites. — *The model and the*

process of posterior distributions: The Bayesian control model. Posterior distributions. Limit behavior of the posterior distributions. — *The equivalent dynamic program and optimal reward operators*. Transformation into a dynamic program. A class of optimal reward operators. Miscellaneous results for the Bayesian control model. — *Bayesian equivalent rules and the average-return criterion*: Bayesian equivalent rules and other approaches. Optimal strategies for the average-return criterion. — *Bayesian equivalent rules and the total-return criterion*: Preliminaries and the independent case. Linear system with quadratic costs. A simple inventory control model. — *Approximations*: Bounds on the value function and successive approximations. Discretizations. — *Computational aspects and examples*: Algorithm for models where I is a singleton. Algorithm for models with known transition law except for one state. Numerical examples. — *Appendix A*: Results from analysis. — *Appendix B*: Remarks on the minimax criterion.

Interfaces between computer science and operations research. — Proceedings of a symposium held at the Mathematisch Centrum, Amsterdam, September 7-10, 1976. — Edited by J. K. Lenstra, A. H. G. Rinnooy Kan, P. van Emde Boas. — Un vol. broché, 16 × 24, de vii, 231 p. — Prix: Dfl. 28.00. — Mathematisch Centrum, Amsterdam, 1978.

W. J. Savitch: The influence of the machine model on computational complexity. — *P. Van Emde Boas*: Developments in data structures. — *J. K. Lenstra, A. H. G. Rinnooy Kan*: Computational complexity of discrete optimization problems. — *M. L. Fisher*: Worst-case analysis of heuristics. — *A. Hajnal, L. Lovasz*: An algorithm to prevent the propagation of certain diseases. — *E. L. Lawler*: Fast approximation algorithms for knapsack problems. — *R. M. Karp*: Probabilistic analysis of partitioning algorithms for the traveling-salesman problem in the plane. — *R. L. Graham, E. L. Lawler, J. K. Lenstra, A. H. G. Rinnooy Kan*: Optimization and approximation in deterministic sequencing and scheduling: a survey.

D. VAN DULST. — **Reflexive and superreflexive Banach spaces.** — Mathematical centre tracts, vol. 102. — Un vol. broché, 16 × 24, de v, 273 p. — Prix: Dfl. 33.00. — Mathematisch Centrum, Amsterdam, 1978.

Prerequisites. — *Reflexivity*: The Eberlein-Smulian theorem. Subreflexivity. Local reflexivity. A renorming of non-reflexive spaces. Elementary facts about bases and basic sequences. Characterizations of reflexivity in terms of bases and basic sequences. Quasireflexivity. Somewhat reflexive spaces. A separable somewhat reflexive space with nonseparable dual. Some geometric properties equivalent to non-reflexivity. The infinite tree property. — *Superreflexivity*: Uniform convexity and uniform smoothness. The problem of uniform convexifiability. The finite tree property. Superreflexivity. Squares in the unit sphere. Girths of unit spheres and flat Banach spaces. Superreflexivity, girths and flatness. Other superproperties equivalent to superreflexivity. Connections with IP -spaces.

D. J. WHITE. — **Finite dynamic programming: an approach to finite Markov decision processes.** — Un vol. relié, 16 × 24, de xiii, 204 p. — Prix: £13.50. — John Wiley and Sons, Chichester/New York/Brisbane/Toronto, 1978.

The optimal route problem: The deterministic problem. The probabilistic problem. — *Optimal discounting over time with single-period decision epochs*: The deterministic problem. The probabilistic problem. — *Optimal non-discounting over time with single-period*

decision epochs: The deterministic problem. The probabilistic problem. — *Optimal discounting over time with multi-period decision epochs*: The deterministic problem. The probabilistic problem. — *Optimal non-discounting over time with multi-period decision epochs*: The deterministic problem. The probabilistic problem. — *Optimizing over-n-transitions*: The discounted problem. The nondiscounted problem. — *Linear programming formulations*: Formulations for the limiting equations. Formulations for the finite horizon equations. — *Probabilistic constraints*. — *Aspects of optimality*: Stability. Discount optimality. Post-optimality. Bounds. Elimination of nonoptimal actions. — (Exercices à la fin de chaque chapitre). — *Solutions to exercises*.

Klaus MATTHES, Johannes KERSTAN, Joseph MECKE. — **Infinitely divisible point processes**. — Trad. de l'édition allemande "Unbegrenzt teilbare Punktprozesse", 1974. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 23, de XII, 532 p. — Prix: £17.50. — John Wiley and Sons, Chichester/New York/Brisbane/Toronto, 1978.

Basic concepts. — The canonical representation of infinitely divisible probability distributions. — Weak convergence of distributions. — Cluster fields. — The Campbell measure. — Stationary distributions. — Cox distributions. — The palm measure. — The Palm distribution. — The generalized Palm-Khinchin theorem. — Homogeneous cluster fields. — Spatially homogeneous branching processes. — References. — Index.

Th. MEIS, U. MARCOWITZ. — **Numerische Behandlung partieller Differentialgleichungen**. — Hochschultext. — Un vol. broché, 17 × 25, de VIII, 452 p. — Prix: DM 38.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Anfangswertaufgaben bei hyperbolischen und parabolischen Differentialgleichungen. — Randwertaufgaben bei elliptischen Differentialgleichungen. — Lösung von Gleichungssystemen. — FORTRAN-Programme.

K. L. CHUNG. — **Elementare Wahrscheinlichkeitstheorie und stochastische Prozesse**. — Übersetzt aus dem Englischen von H. Vogt. — Hochschultext. — Un vol. broché, 17 × 25, de IX, 343 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

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T. HUSAIN, S. M. KHALEELULLA. — **Barrelledness in topological and ordered vector spaces.** — Lecture notes in mathematics, vol. 692. — Un vol. broché, 17 × 25, de ix, 258 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Preliminaries: Topological vector spaces. Locally convex spaces. The Hahn-Banach theorem. Completeness, quasi-completeness and sequential completeness. Continuous and open linear maps. $\mathfrak{G}$ -topologies. Duality theory. Topological tensor products. Topological bases. Ordered topological vector spaces. Ordered locally convex spaces. The topology $O(F, E)$. — *Some classes of locally convex spaces*: Barrelled and quasi-barrelled spaces. Bornological spaces. Distinguished spaces. (DF) -spaces. — *Ultra-barrelled, ultrabornological and quasiultrabarrelled spaces*: Ultrabarrelled and quasi-ultrabarrelled spaces. Ultrabornological spaces. — *Order-quasibarrelled vector lattices and spaces*: Order-quasibarrelled vector lattices. Permanence properties. Closed graph and Banach-Steinhaus theorems. — *Countably barrelled and countably quasibarrelled spaces*: Definitions, characterizations and relationships. $C(X)$, countably barrelled and countably quasibarrelled spaces. The Banach-Steinhaus theorem. Permanence properties. H -spaces. Open problems. — σ -barrelled and sequentially barrelled spaces: σ -barrelled spaces. σ -barrelled spaces and Mackey topology. Unconditional convergences and bases. Sequentially barrelled spaces. Open problems. — *Countably ultrabarrelled and countably quasiultrabarrelled spaces*: Definitions and some properties. The Banach-Steinhaus and the isomorphism theorems. Tensor products. Open problems. — *Countably order-quasibarrelled vector lattices and spaces*: C.O.Q. vector lattices. Order- (DF) -vector lattices. Permanence properties. C.O.Q. vector spaces and analogue of the Banach-Steinhaus theorem. Tensor products. Open problems. — *Order-quasiultrabarrelled vector lattices and spaces*: O.Q.U. vector lattices. Permanence properties. Analogue of the Banach-Steinhaus theorem. A closed graph theorem. — Bibliography. — Index.

Hilbert space operators: proceedings, California State University Long Beach, Long Beach, California, 20-24 June, 1977. — Edited by J. M. Bachar, Jr. and D. W. Hadwin. — Lecture Notes in Mathematics, vol. 693. — Un vol. broché, 17 × 25, de viii, 184 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

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Séminaire Pierre Lelong-Henri Skoda: (Analyse): année 1976/77. — Edité par Pierre Lelong et Henri Skoda. — Lecture Notes in Mathematics, vol. 694. — Un vol. broché, 17 × 25, de vii, 334 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

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Combinatorial mathematics: proceedings of the International Conference on combinatorial theory, Canberra, August 16-27, 1977. — Edited by D. A. Holton and Jennifer Seberry. — Lecture Notes in Mathematics, vol. 686. — Un vol. broché, 17 × 25, de ix, 353 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York and Australian Academy of Science, Canberra, 1978.

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Algebraic geometry: proceedings, Tromsø Symposium, Norway, June 27-July 8, 1977. — Edited by Loren D. Olson. — Lecture Notes in Mathematics, vol. 687. — Un vol. broché, 17 × 25, de v, 244 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

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Cabal Seminar 76-77: proceedings, Caltech-UCLA logic Seminar 1976-77. — Edited by A. S. Kechris and Y. N. Moschovakis. — Lecture Notes in Mathematics, vol. 689. — Un vol. broché, 17 × 25, de v, 282 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

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International mathematical olympiads 1959-1977. — Compiled and with solutions by Samuel L. Greitzer. — New Mathematical Library, vol. 27. — Un vol. broché, 25×23 , de x, 204 p. — Prix: £4.00. — Mathematical Association of America, Washington, D.C., 1978.

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Walter FELSCHER. — **Naive Mengen und abstrakte Zahlen I**. — Un vol. broché, 14 × 21, de 260 p. — Prix: DM 24.00. — Bibliographisches Institut — Wissenschaftsverlag, Mannheim/Wien/Zürich, 1978.

Mengen: Definitionen. Der naiv-modelltheoretische Standpunkt. Wie findet man Axiomensysteme der Mengenlehre? Der Russel'sche Widerspruch. Typen und Hierarchien. Zermelo'sche Mengenlehre. Klassen und die Mengenlehren NBG, QM und ZF. Sprachliches über mengentheoretische Formeln und Anwendungen. Der naiv-syntaktische Standpunkt. Relationen und Funktionen. Äquivalenzrelationen und Partitionen. Ordnungen. Hüllensysteme. — *Hilfsmittel aus der Algebra*: (Binäre) Algebren. Halbgruppen und Monoide. Gruppen. Ringe. Lokalisierung. Geordnete Algebren. — *Natürliche Zahlen*: Einleitung. Natürliche Monoide. Dedekind-Tripel. Mengentheoretische Beispiele von Mengen natürlicher Zahlen. Die additive Gruppe der ganzen Zahlen. Der Ring der ganzen Zahlen und sein Quotientenkörper. Natürlich geordnete Mengen. Endliche Mengen. Autonome Theorien endlicher Mengen. Weiteres über Rekursionsverfahren, endliche Kombinatorik. Anfänge der Arithmetik. Rekursive Funktionen. Abzählbare Mengen. Fundierte Relationen. Das Auswählen aus nicht leeren Mengen.

Walter FELSCHER. — **Naive Mengen und abstrakte Zahlen II.** — Un vol. broché, 14 × 21, de 222 p. — Prix: DM 24.00. — Bibliographisches Institut-Wissenschaftsverlag, Mannheim/Wien/Zürich, 1978.

Algebraische Zahlen: Elementare Einführung algebraischer Zahlen. Polynome und ihre Nullstellen. Komplexe Zahlen. Ideale Primfaktoren und ideale Zahlen. Dedekind's Einführung der Ideale und weiterer Konstruktionen. Kronecker'sche Divisionen. Die Methode der Unbestimmten und das Kronecker'sche Programm. — *Reelle Zahlen*: Transzendente Zahlen. Hilfsmittel über geordnete Mengen. Vervollständigungen geordneter Mengen. Hilfsmittel über geordnete Gruppen und Ringe. Vervollständigungen geordneter Gruppen und Körper. Die Struktur archimedischer totalgeordneter Gruppen. Die Struktur archimedischer totalgeordneter Ringe und Körper. Eudoxische Gruppen. Konvergente Folgen. Kompletterungen. G -adische Bruchdarstellungen. Offene und abgeschlossene Mengen reeller Zahlen. Zahlen und Grössen.

Günther EISENACK und Christian FENSKE. — **Fixpunkttheorie.** — Un vol. broché, 14 × 21, de 258 p. — Prix: DM 38.00. — Bibliographisches Institut-Wissenschaftsverlag, Mannheim/Wien/Zürich.

Kontrahierende Abbildungen: Der Banachsche Fixpunktsatz. Die Kontraktionseigenschaft. Das Kontraktionsprinzip bei verallgemeinertem Abstandsbegriff. — *Die Fixpunkteigenschaft*: Der Brouwersche Fixpunktsatz. Fixpunkträume. Der Fixpunktsatz von Schauder-Tychonoff. — *Der Lefschetz'sche Fixpunktsatz*: Begriffe aus der algebraischen Topologie. Der Lefschetz'sche Fixpunktsatz. — *Der Abbildungsgrad für differenzierbare Abbildungen*: Analyse des Problems: Eindeutigkeit. Synthese: Existenz des Abbildungsgrades. Ein Spezialfall: Verdichtende Abbildungen. — *Der Abbildungsgrad für stetige Abbildungen*: Endlichdimensionaler Fall. Der Antipodensatz. Exkurs: Gradientenoperatoren. Kompakte Abbildungen. Verdichtende Abbildungen. — *Verzweigungstheorie*: Verzweigung bei einfachen Eigenwerten. Ein globales Resultat. — *Der Fixpunktindex*: Definition und Eigenschaften des Index. Wesentliche Fixpunkte. — *Asymptotische Fixpunktsätze*: Fixpunkte von iterierten Abbildungen. Abbildungen mit kompakten Iterierten. Abstossende Fixpunkte. Ein Spezialfall: Kompakte konvexe Mengen. Anziehende Fixpunkte und Verzweigungstheorie. — *Varia*: Fixpunkte homotoper Abbildungen. Projektionsmethoden. Gemeinsame Fixpunkte. Fixpunkte mengenwertiger Abbildungen. — *Anhang*: Fredholmoperatoren und Fredholmabbildungen. Absolute Umgebungsretrakte. Ergänzungen zur Homologie theorie.

Rolf WALTER. — **Differentialgeometrie.** — Un vol. broché, 14 × 21, de III, 278 p. — Prix: DM 28.00. — Bibliographisches Institut-Wissenschaftsverlag, Mannheim/Wien/Zürich, 1978.

Elementare Differentialgeometrie: Grundlegendes über Kurven. Kurven im $\mathbb{R}^2$. Vierscheitelsatz. Kurven im $\mathbb{R}^3$. Flächenstücke im $\mathbb{R}^3$. Die Abbildungen von Gauss und Weingarten. Die Rolle der zweiten Fundamentalform. Regelflächen. Nulllinien Pfaffscher Formen in $\mathbb{R}^2$ und Anwendungen. — *Riemannsche Geometrie*: Definition und einfache Eigenschaften. Der Levi-Civita-Zusammenhang. Die Methode der Basisfelder (Cartan'scher Kalkül). Wechsel des Basisfeldes. Spezialisierung auf den zweidimensionalen Fall. Parallelverschiebung. Geodätische und Exponentialabbildung. Die Schnittkrümmung. Radiale Entwicklung. — *Hyperflächen im euklidischen Raum*: Grundlegendes über Hyperflächenimmersionen. Die Methode der bewegten Basen. Die Abbildungen von

Gauss und Weingarten. Nabelpunktsimmersionen. Isometrie und Kongruenz. Der Kalkül von K. Voss. Die Integralformeln von Minkowski. Globale Kennzeichnungen der Sphären. Der Kongruenzsatz von Cohn-Vossen. — *Der Satz von Gauss-Bonnet*: Der Kalkül von Flanders. Die Chern-Gleichung. Gauss-Bonnet-Chern-Integral und reguläre Nullstellen von Vektorfeldern. Allgemeiner Index und Euler-Charakteristik. Der Integralsatz von Gauss-Bonnet mit Rand. Berechnung der Euler-Charakteristik durch nicht-ausgeartete Funktionen. — *Kovariante Ableitung von Tensorfeldern*. — Anhänge: Multilineare Algebra. Differenzierbare Mannigfaltigkeiten.

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Jahrbuch Überblicke Mathematik 1978. — Hrsg. von Benno Fuchssteiner, Ulrich Kulisch, Detlef Laugwitz und Roman Liedl. — Un vol. broché, 14 × 21, de 223 p. — Prix: DM 28.00. — Bibliographisches Institut-Wissenschaftsverlag, Mannheim/Wien/Zürich, 1978.

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Recent developments in variable structure systems, economics and biology: proceedings of US-Italy Seminar, Taormina, Sicily, August 29-September 2, 1977. — Edited by R. R. Mohler and A. Ruberti. — Lecture notes in economics and mathematical systems, vol. 162. — Un vol. broché, 16,5 × 24, de vi, 326 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

P. d'Alessandro: A topological space of systems and a dense subset. — *A. V. Balakrishnan:* On quickest detection of system structure variation. — *J. S. Baras:* Stochastic partial differential equations in optical communication problems. — *C. Bruni, A. Gandolfi, A. Germani:* A bounded rate model for mass action. Multiple binding processes, stability analysis. — *E. Burmeister:* Expectations and dynamic stability in economic models. — *G. Gasalino, F. Davoli, R. Zoppoli:* Optimal control of information structures. — *D. L. Elliott:* Mathematical models of blood coagulation kinetics. — *E. Fornasini, G. Marchesini:* Stability problems in 2-D systems. — *P. A. Frick:* On malthusian models of migration and population growth. — *C. Gori-Giorgi, S. Monaco:* Minimal realizations of linear and affine time varying systems. — *A. J. Krener:* Continuous linear programming

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ROSS HONSBARGER. — **Mathematical morsels.** — The Dolciani mathematical expositions n° 3. — Un vol. relié, 14,5 × 22, de XII, 249 p. — Prix: £8.70. — The Mathematical Association of America (distr. by John Wiley & Sons Ltd., Chichester) 1978.

The chess tournament. The ordered partitions of n . Regions in a circle. The ferry boats. The bulging semicircle. The chauffeur problem. The screens in the corner. Coloring the plane. An obvious maximum. $\cos 17x = f(\cos x)$. A square in a lattice. An opaque square. X 's and O 's. A surprising property of right-angled triangles. The digits of 4444^{4444} . $\sigma(n) + \varphi(n) = nd(n)$. On k -clouds. A minimal sum. The last three digits of 7^{9999} . Rolling a die. Piercing a cube. Double sequences. Point-splitting circles. On the lengths of the sides of a triangle. No calculus please. a^b and b^a . A mathematical joke. Maps on a sphere. Convex regions in the plane. Simultaneous diophantine equations. A reflected tangent. The elegantly destroyed checkerboard. The snowballs. Writing the numbers from one to a billion. Abutting, nonoverlapping unit squares. A diophantine equation. The Fibonacci sequence. An Erdős inequality. Sharing lattice points. Perfect numbers. The sides of a quadrilateral. Primes in arithmetic progression. On cevians. The cows and the sheep. A sequence of squares. The inscribed decagon. Red and blue dots. Swale's method. On $\pi(n)$. A constant chord. The number of inner diagonals. Loading the dice. A curious sequence. Long strings of consecutive natural numbers. A minimal inscribed quadrilateral. Triangular numbers. On a regular n -gon. The Fermat numbers. An inequality of reciprocals. A perfect 4th power. Packing squares. Red and green balls. Composite terms in arithmetic progression. Abutting equilateral triangles. The tests. An application of Ptolemy's theorem. Another diophantine equation. An unusual property of complex numbers. A chain of circles. Repeated digits at the end of a square. An angle bisector. A system of inequalities. An unexpected property of a regular 26-gon. More on perfect squares. An unusual polynomial. Cyclic centroids. An easy remainder. A curious property of 3. A square within a square. Always a square. Grouping the natural numbers. Triangles with sides in arithmetic progression. Fractions by permutation. On binomial coefficients. The Fermat number F_{73} . A cyclic quadrilateral. Special triples of natural numbers. The sums of the primes. Another curious sequence. The ellipse and the lattice. Archimedes triangles.

Algorithmic methods in probability. — Edited by Marcel F. Neuts. — TIMS studies in the management sciences, vol. 7. — Un vol. broché, 16,5 × 24, de VI, 294 p. — Prix: Dfl. 65.00. — North Holland Publishing Company, Amsterdam, 1977.

Harald Bohman: Numerical Fourier inversion. — *Bronwyn Allen, R. S. Anderssen and E. Seneta*: Computation of stationary measures for infinite Markov chains. — *David Hunter*: Approximating percentage points of statistics expressible as maxima. — *Donald*

L. Iglehart : Simulating stable stochastic systems: selecting the best system. — *Edward J. Dudewicz and Nicholas A. Zaino, Jr.* : Allowance for correlation in setting simulation run-length via ranking-and-selection procedures. — *Stelios H. Zanakis* : Computational experience with some nonlinear optimization algorithms in deriving maximum likelihood estimates for the three-parameter Weibull distribution. — *Herbert Moskowitz and Raymond K. Fink* : A bayesian algorithm incorporating inspector errors for quality control and auditing. — *Richard J. Kryscio and Norman C. Severo* : Statistical inferences for a stochastic epidemic model proposed by Gart. — *Martin Reiser* : Numerical methods in separable queueing networks. — *Eginhard J. Muth* : Numerical methods applicable to a production line with stochastic servers. — *Bernard Pagurek and C. Murray Woodside* : A recursive algorithm for computing serial correlations of times in an $M/G/1$ queue. — *Marcel F. Neuts* : Algorithms for the waiting time distributions under various queue disciplines in the $M/G/1$ queue with service time distributions of phase type. — *Oliver S. Yu* : The steady-state solution of a heterogenous-server queue with Erlang service times. — *David M. Avis* : Computing waiting times in $GI/E_k/c$ queueing systems. — *Faiz A. Al-Khayyal and Donald Gross* : On approximating and bounding $GI/M/c$ queues. — *Sagi N. Raju and U. Narayan Bhat* : Recursive relations in the computation of the equilibrium results of finite queues. — *J. E. Knepley and M. J. Fischer* : A numerical solution for some computational problems occuring in queueing theory.

Albert WILANSKY. — **Modern methods in topological vector spaces.** — Advanced book program. — Un vol. relié, 17 × 24, de xiii, 298 p. — Prix: DM 72.50. — McGraw-Hill International Book Company, New York/St. Louis/San Francisco/Auckland/Beirut/Bogota/Düsseldorf/Johannesburg/Lisbon/London/Lucerne/Madrid/Mexico/Montreal/New Delhi/Panama/Paris/San Juan/Sao Paulo/Singapore/Sydney/Tokyo/Toronto, 1978.

Introduction : Explanatory. Table of spaces. Some computations. Nets. Vector space. Topology. — *Metric ideas* : Paranorms. Seminorms. Seminormed space. — *Banach space* : Banach space. The second dual. Uniform boundedness. — *Topological vector spaces* : Definitions and examples. Properties. Construction. Bounded sets. Metrization. — *Open mapping and closed graph theorems* : Fréchet space. Open maps. Closed graph. The basis. *FH spaces*. — *Five topics* : Completeness. Quotients. Finite-dimensional space. Totally bounded sets. Compact sets. — *Local convexity* : Locally convex space. Seminorms. Separation and support. — *Duality* : Compatible topologies. Dual pairs. Polars. Boundedness. Polar topologies. Some complete spaces. — *Equicontinuity* : Equicontinuous sets. The Mackey-Arens theorem. Barrelled spaces. The equivalence program. Separable spaces. Applications. — *The strong topology* : The natural embedding. Semireflexivity. Boundedness. Metric space. — *Operators* : Dual operators. The Hellinger-Toeplitz theorem. Banach space. Weakly compact operators on Banach spaces. — *Completeness* : Precompact convergence. aw^* . Strict hypercompleteness. Full completeness. Closed graph theorems. Converse theorems. — *Inductive limits* : Inductive limits. Direct sums. Strict inductive limits. Finite collections of metric spaces. — *Compactness* : Weak compactness. Convex compactness. Extreme points. Phillips' lemma. The space L . The space $M(H)$. GB and G spaces. — *Barrelled spaces* : Barrelled subspaces. Inclusion theorems. The separable quotient problem. The strong topology. Miscellaneous.

J. H. POLLARD. — **Mathematical models for the growth of human populations.** — Un vol. broché, 15 × 23, de xii, 186 p. — Prix: £3.50. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1975.

Introduction. The life table. The deterministic population models of T. Malthus, A. J. Lotka, and F. R. Sharpe and A. J. Lotka. The deterministic theory of H. Bernardelli,

P. H. Leslie and E. G. Lewis. Simple birth and death processes. The stochastic models of M. S. Bartlett and D. G. Kendall. The two-sex problem. The extinction of surnames. The stochastic version of Leslie's model. Hierarchical population models and recruitment. Conclusion.

Klaus HABERLAND. — **Galois cohomology of algebraic number fields.** — With two appendices by Helmut Koch and Thomas Zink. — Un vol. broché, $16,5 \times 23$, de 145 p. — Prix: DM 46.50. — VEB Deutscher Verlag der Wissenschaften, Berlin, 1978.

Introduction : Logical dependence of the theorems. — *Formulation of results* : Notation. Local results. Formulation of Taste's theorem. First remarks and plan of proof. — *The cohomological dimension of G* : The cohomology of the S -units. The usual cohomological dimension of G . Malleable groups. On the strict cohomological dimension of G . Modification of the class formation (G, C_S) and the universal norms of the S -idele class group. — *The global Euler-Poincaré characteristic* : Formulation of the theorem. Proof step 1, multiplicativity. Proof step 2, Behaviour in the case of induced modules. Proof step 3, reduction to the case $M = \mu_p$. Proof step 4, Calculation of the Euler-Poincaré characteristic for μ_p . End of the proof. — *The Tate pairing* : The homology of profinite groups. The proposition concerning Tate's pairing. On the "module dualisant" of a number field. Once again on the strict cohomological dimension of G . — *Proof of Tate's theorem* : The cohomology of $\text{Hom}(M, J_S)$. "Half" of the Tate sequence. Explicit description of the pairing from theorem. Proof of Tate's theorem. The exactness of the Tate sequence in the middle term. On the functorial behaviour of the Tate sequence. — *On the maximal pro- p factor group of G* : First remarks. Twisted action. Proof of proposition 22. — *Remarks concerning the kernel of the map α_1* : A general method for determining $\text{Ker}^1(k_S, M)$. An algebraic consideration. Construction of non-trivial kernels. — *On the Scholz-Reichardt-Neukirch proposition* : The central embedding problem for groups. The central embedding problem for number fields. The local case. The global case. — *Quantitative statements in the simple case of the constructional problem for finite p -groups* : Introductory remarks. The Abelian case. The simple case of a p -group, first remarks. The simple case of a p -group, local questions. The simple case of a p -group, global questions. The simple case of a p -group, analytical part. The simple case of p -group, independence of the sum of constants. Examples. — APPENDIX 1: *On p -extensions with given ramification (H. Koch)* : Representations of pro- p -groups by generators and relations. The group algebra of a pro- p -group. The maximal p -extension of a p -adic number field. The maximal p -extension with given ramification. Generator rank. The case $k = \mathbb{Q}$. The 2-class field tower of a quadratic number field. — APPENDIX 2: *Etale cohomology and duality in number fields (Th. Zink)* : Etale topology of algebraic number fields. Cohomology. Artin-Verdier duality.

W. L. WENDLAND. — **Elliptic systems in the plane.** — Monographs and studies in mathematics, vol. 3. — Un vol. relié, 16×24 , de xi, 404 p. — Prix: £28.00. — Pitman Publishing Ltd., London/San Francisco/Melbourne, 1979.

SOLVABILITY PROPERTIES OF RIEMANN HILBERT PROBLEMS: *Review of the Riemann-Hilbert-problem in Hilbert's normal form* : The first boundary value problem. The boundary value problem with characteristic. The boundary value problem of positive characteristic. Semilinear first-order problems. Remarks on the additional references. — *The normal form of elliptic systems with two unknowns* : The distinguishing Pfaffian form of (2.0.1). The transformation using complex-valued functions. The solution of Beltrami's system

in the analytic case. Existence proofs with the Hilbert transformation. A priori estimates. Nonlinear elliptic systems. — *Normal forms of general first-order systems*: Classification and the algebraic normal forms for elliptic systems. The Fredholm property for systems in normal form. The index for systems in normal form. One adjoint system and normal solvability. Two problems with violated Lopatinski condition. — *The general regular elliptic boundary value problem*: A priori estimate and semi-Fredholm property. The Fredholm property of the general system and its approximation. The adjoint problem. Some remarks on nonlinear systems. Remarks on the additional references. — *Singular integral equations, representation formulas and some function theoretic properties*: Singular integral equations for systems in normal form. Fundamental solutions and singular integral equations. Generalized hyperanalytic functions, zeros, unique continuation and the Runge property. Remarks on the analytic theory. Remarks on the additional references. — **COMPUTATIONAL METHODS**: *Numerical methods using integral equations*: Conformal mapping. Boundary integrals. The approximation and discretization of Fredholm integral equations of the second kind. A successive approximation method. Layer methods. Remarks on the additional references. — *Finite difference methods*: Matrices of positive type. The approximation scheme for the Laplacian. The discrete Green function. The discrete and nondiscrete Green functions. An $O(h^2)$ approximation for the discrete Neumann function. The discrete and nondiscrete Neumann functions. Remarks on the normalizing condition. A convergent finite difference method for the first-order system. Remarks on the treatment of the difference equations. Remarks on the semilinear problems. — *Continuous approximations by minimizing the defect*: Chebyshev approximations. Least squares approximations without weighted norms. Finite element approximations. A least squares method with optimal order of convergence. The discrete equations for the least squares method. A Ritz and a Galerkin method for the standard problem. Remarks on the additional references. — *Appendix*: Applications of systems of the first order: One second order equation. Plane elastic deformations. Plate and shell problems. Flow problems.

Problèmes combinatoires et théorie des graphes, Orsay 9-13 juillet 1976. — Colloques internationaux du Centre national de la recherche scientifique, n° 260. — Un vol. broché, $20,5 \times 29,5$, de xiv, 443 p. — Prix: FF 345.00. — Editions du Centre national de la recherche scientifique, Paris, 1978.

I. Abdul-Kader: Indice de partition en chemin des arcs des tournois ayant un seul circuit hamiltonien. — *L. D. Andersen*: On edge-colourings of graphs. — *J. C. Arditti*: Partially ordered sets and their adjacency. — *A. Astié*: Automorphismes d'arêtes des hypergraphes des bases d'un matroïde. — *L. Babai*: Embedding graphs in Cayley graphs. — *K. Baclawski*: Homology and graphs. — *Z. Baranyai*: La coloration des arêtes des hypergraphes complets II (la coloration équitable $K_{n_1}^h \dots n_h$). — *D. Bédard*: Immersions de line-graphes. — *C. Berge*: Multicoloration dans les hypergraphes unimodulaires et matrices dont les coefficients sont des ensembles. — *J. C. Bermond*: Le problème des « ouvroirs ». — *J. C. Bermond, A. E. Brouwer et A. Germa*: Systèmes de triplets et différences associées. — *J. C. Bermond, A. Germa, M. C. Heydemann et D. Sotteau*: Hypergraphes hamiltoniens. — *M. R. Best*: Improvements of the linear programming bound. — *R. G. Bland*: Pivoting in oriented matroids. — *B. Bollobas*: Nested cycles in graphs. — *J. A. Bondy and R. L. Hemminger*: Reconstruction by enumeration, some applications of a counting theorem to the graph reconstruction problem. — *A. Bouchet*: Genre maximum d'un Δ -graphe. — *A. E. Brouwer*: Optimal packings of quadruples. — *W. G. Brown, P. Erdős and M. Simonovits*: On multigraph extremal problems. — *N. G. De Bruijn*: The use of partially ordered sets for the study of non-classical propositional

logics. — *P. M. Camerini and F. Maffioli*: Exact and heuristic methods for *NP*-hard matroid problems. — *P. Camion*: Une classe de graphes non planaires sommet-transitifs représentables sur le tore. — *G. Chaty et M. Chein*: Une nouvelle caractérisation des circuits composés. — *E. J. Cockayne et S. T. Hedetniemi*: Graphes de groupes avec cliques maximales disjointes. — *O. Cogis*: Détermination d'un préordre total contenant un préordre et contenu dans une relation de Ferrers, lorsque leur domaine commun est fini. — *R. J. Cook*: Some results in topological graph theory II. — *R. Cori*: Codage d'une carte plane et hyperarbres recouvrants. — *D. E. Daykin*: Poset functions commuting with the product and yielding Chebychev type inequalities. — *M. Deza*: Pavage généralisé parfait comme généralisation de matroïde-configurations et de simples *t*-configurations. — *J. G. Dion et H. Raynaud*: Quelques nouvelles conditions suffisantes pour qu'une vidange soit forte. — *W. Dörfler*: Automorphisms and isomorphisms of permutation graphs. — *J. Doyen, X. Hubaut and M. Reynaert*: Finite graphs with isomorphic neighbourhoods. — *F. Driesbeke et A. De Frenne*: Etude des bornes du nombre chromatique d'un graphe. — *P. Duchet*: Propriété de Helly et problèmes de représentation. — *P. Eades and J. S. Wallis*: Some asymptotic results for orthogonal designs: II. — *C. S. Edwards*: The largest number of triangles with a common edge in a graph. — *P. Erdős*: Problems and results in graph theory and combinatorial analysis. — *I. A. Faradzev*: Constructive enumeration of combinatorial objects. — *M. Farzan*: Automorphisms of double covers of a graph. — *S. Foldes and P. L. Hammer*: On split graphs and some related questions. — *M. Fontet*: On an algorithm of Hopcroft and Tarjan: a new tri-connectivity algorithm. — *J. L. Fouquet et J. L. Jolivet*: Graphes hypohamiltoniens orientés. — *J. C. Fournier*: Un théorème général de coloration. — *A. Frank and A. Gyárfas*: Directed graphs and computer programs. — *P. Frankl*: On a problem of Bondy and Hajnal. — *H. de Fraysseix*: Sur la représentation d'une suite à triples et à doubles occurrences par la suite des points d'intersection d'une courbe fermée du plan. — *M. Lepp Gardner*: Intersection properties of graphs and hypergraphs. — *G. Giraud*: Une majoration du nombre *t* de triangles tricolores dans tout *k*-coloriage des arêtes de K_n , pour $k = 3$ ou 4 . — *M. A. Girodet et N. Picard*: Graphes des groupes du plan. — *M. Gondran et M. Minoux*: Valeurs propres et vecteurs propres en théorie des graphes. — *D. Gouyou-Beauchamps*: Un algorithme de recherche de circuit hamiltonien dans les graphes 4-connexes planaires. — *R. L. Graham and L. Lovasz*: Distance matrix polynomials of trees. — *B. Grünbaum*: Regularity of graphs, complexes and designs. — *R. K. Guy*: Partizan games. — *A. Gyárfas and J. Lehel*: A method to generate graceful trees. — *R. Halin*: Some topics concerning infinite graphs. — *P. Hansen*: Labelling algorithms for balance in signed graphs. — *P. Hell*: Graphs with given neighborhoods I. — *M. C. Heydemann*: Caractérisation spectrale du joint d'un cycle par un stable. — *A. Hill*: The continuous charms of discrete mathematics, some grassroot problems in arcs combinatoria. — *A. J. W. Hilton*: Dimension in linear spaces. — *A. J. Hoffman and P. Joffe*: Nearest *s*-matrices of given rank and the Ramsey problem for eigenvalues of bipartite *s*-graphs. — *X. Hubaut*: Extension de graphes. — *F. Jaeger*: Sur les graphes couverts par leur bicycles et la conjecture des quatre couleurs. — *R. P. Jones*: Some results of chromatic hypergraph theory proved by "reduction to graphs". — *E. Jucovic*: On polyhedral surfaces which are not inscribable in spherical shells. — *D. Jungnickel*: On regular sets of latin squares. — *G. O. H. Katona*: Optimization for order ideals under a weight assignment. — *J. M. Laborde*: Une question d'algèbre de Boole sur les fonctions irréductibles et le couplage min-max du *n*-cube. — *M. Las Vergnas*: Extensions ponctuelles d'une géométrie combinatoire orientée. — *J. L. Laurière*: A language for intelligent combinatorial exploration. — *B. Liouville*: Sur le genre d'une somme cartésienne de 2 graphes. — *M. Loréa*: Hypergraphes et matroïdes. — *D. Lubell and A. J. Volponi*: Primitivity of relations. — *K. Maghout*: Un problème de rangement. — *L. Matthews*: Properties of bicircular matroids. — *J. Mayer*: Une propriété des graphes minimaux

dans le problème des quatre couleurs. — *B. Montjardet* : Caractérisations et propriété de Sperner des treillis distributifs planaires finis. — *F. S. Mulla and C. M. Pareek* : On 3-regular graphs. — *U. S. R. Murty and I. Simon* : A β -function that is not a sum of rank functions of matroids. — *J. Nešetřil and V. Rödl* : On Ramsey minimal graphs. — *J. Nešetřil and V. Rödl* : A selective theorem for graphs and hypergraphs. — *V. Neumann-Lara* : On clique-divergent graphs. — *J. Novak* : On certain minimal systems of k -tuples. — *C. Van Nuffelen* : On the rank of the adjacency matrix. — *L. Oubiña* : Localisation d'une propriété du graphe des bases d'un matroïde binaire. — *J. G. Oxley* : Infinite matroids and duality. — *C. Payan* : Couplages maximaux disjoints. — *D. Perret* : Une propriété des graphes de Cayley 3 connexes planaires. — *M. D. Plummer* : Menagerian theorems for paths of bounded length. — *I. Rabinovitch* : Characteristics of minimal realizers. — *R. Rado* : Sequential partition relations. — *H. Retkin and S. Mogi* : Some combinatorial identities on matroids. — *R. D. Ringeisen* : On additivity in maximum genus. — *I. Rival* : Lattices and partially ordered sets. — *A. Rosa* : On generalized room squares. — *P. Rosenstiehl* : Les graphes d'entrelacement d'un graphe. — *G. C. Rota* : Hopf algebra methods in combinatorics. — *C. C. Rousseau and J. Sheehan* : Ramsey numbers for books. — *H. Sachs* : Graphs and surfaces assigned to finite groups. — *K. W. Schmidt and E. T. H. Wang* : The weights of Hadamard matrices. — *A. Schrijver* : On the structure of deltoids. — *P. D. Seymour* : The matroids representable over $GF(3)$. — *J. M. S. Simoes-Pereira* : A comment on matroidal families. — *M. Simonovits and V. T. Sos* : Intersection theorems for graphs. — *F. Sterboul* : Hypergraphes transversaux des couplages. — *M. M. Syslo* : On characterizations of cycle graphs. — *E. Szemerédi* : Regular partitions of graphs. — *W. T. Trotter, Jr.* : Combinatorial problems in dimension theory for partially ordered sets. — *W. T. Tutte* : Sommes chromatiques. — *L. Vigneron* : A propos de la conjecture de Tait. Définition de la c -parité d'un cycle bicolore d'arêtes : effets produits par l'échange des couleurs sur un cycle dans le cas où il est c -pair et dans le cas où il est c -impair. — *P. Vincke* : Une borne supérieure pour la faiblesse minimum d'un quasi-noyau dans un graphe. — *D. A. Waller* : A graph-theoretical model for telecommunications networks. — *M. E. Watkins* : Les graphes de Cayley de connectivité un. — *D. J. A. Welsh* : Combinatorial problems in percolation theory. — *D. de Werra* : Color-feasible sequences of almost bipartite graphs. — *A. P. Wojda* : On a class of Hamiltonian-type notions. — *J. Zaks* : Some Hamiltonian results in polytopal graphs. — PROBLEMES.

Volker NOLLAU. — **Statistische Analysen**: Mathematische Methoden der Planung und Auswertung von Versuchen. — Mit einem Anhang ALGOL-Programme von Andreas Hahnwald-Busch. — 2. Auflage. — Lehr- und Handbücher der Ingenieurwissenschaft, 37. — Un vol. relié, 17 × 24,5, de 378 p. — Prix: Fr. 36.00. — Birkhäuser Verlag, Basel/Stuttgart, 1979.

Grundlagen : Matrizen, Vektoren, Determinanten. Ableitungen von Linearformen und quadratischen Formen. Zufällige Vektoren und mehrdimensionale Normalverteilung. Lineare Transformationen normalverteilter zufälliger Vektoren. Wahrscheinlichkeitsverteilungen zufälliger quadratischer Formen — χ^2 -Verteilung — F -Verteilung. Stichproben und Stichprobenfunktionen — t -Verteilung. Signifikanztests — Punktschätzungen — Konfidenzintervalle. — *Das allgemeine lineare Modell der Mathematischen Statistik* : Definition und Matrixform des allgemeinen linearen Modells. Die Methode der kleinsten Quadrate als Schätzprinzip. — Das GAUSS-MARKOV-Theorem. Reparamétrisation. Eine kanonische Darstellung linearer Modelle und eine Punktschätzung für σ^2 . Einfacher und doppelter t -Test. Konfidenzintervalle für schätzbare Funktionen. Ein Test zum Prüfen linearer Hypothesen. Linearitätstest von R. A. FISHER. — *Regressionsanalyse*

Modell I: Das Modell der linearen Regression. Punktschätzungen und Konfidenzintervalle für Regressionskoeffizienten und Regressionsfunktionen. Tests zum Prüfen von Hypothesen bez. der Regressionskoeffizienten. Lineare Regression mit unterschiedlicher Genauigkeit. Quasilineare Regression. BOX-WILSON-Methode. — *Varianzanalyse* — *Modell I*: BARTLETT-Test. Einfache Klassifikation im Modell I. Lineare Kontraste (SCHEFFÉ-Test und EVOP-Programme). Kreuzklassifikation im Modell I (ohne Wiederholungen). Additivitätstest von TUKEY. Kreuzklassifikation im Modell I (mit Wiederholungen in gleicher Anzahl). Kreuzklassifikation im Modell I (mit Wiederholungen in ungleicher Anzahl). Zweifache hierarchische Klassifikation im Modell I. — *Kovarianzanalyse*: (1,1)-Klassifikation der Kovarianzanalyse (einfache Klassifikation mit einer Kovariablen). (2,1)-Klassifikation der Kovarianzanalyse (zweifache Klassifikation ohne Wiederholungen mit einer Kovariablen). (2,2)-Klassifikation der Kovarianzanalyse (zweifache Klassifikation ohne Wiederholungen mit zwei Kovariablen). — *Diskriminanzanalyse*: Diskriminanzanalyse — Typ 2. Diskriminanzanalyse — Typ N ($N > 2$). — *Varianzanalyse* — *Modell II*: Einfache Klassifikation im Modell II. Kreuzklassifikation im Modell II (mit Wiederholungen in gleicher Anzahl). Zweifache hierarchische Klassifikation im Modell II. Kreuzklassifikation im gemischten Modell (mit Wiederholungen in gleicher Anzahl). — *Korrelationsanalyse* (*Regressionsanalyse* — *Modell II*): Korrelationsanalyse mittels des einfachen Korrelationskoeffizienten. Korrelationsanalyse mittels der partiellen Korrelationskoeffizienten. Korrelationsanalyse mittels der multiplen Korrelationskoeffizienten. — *Abschliessende Bemerkungen*. — *Anhang*: ALGOL-Programme.

Werner GAEHLER. — **Grundstrukturen der Analysis**, Band 2. — Mathematische Reihe, Band 61. — Un vol. relié, 17 × 24,5, de VIII, 623 p. — Prix: Fr. 92.00. — Birkhäuser Verlag, Basel/Stuttgart, 1978.

Limitierte Algebra: Gruppen. Radialräume. Vektorräume. Limitierte Gruppen, limitierte Radialräume, limitierte Vektorräume. Die assoziierten verträglichen Limitierungen, Pseudotopologien, mehrstufigen Topologien und Topologien. Über der die Limesuniformisierbarkeit limitierter Gruppen. Verallgemeinerte limitierte Radialräume, limitierte lineare Gruppen. Gleichförmigkeit, Kreisförmigkeit und Ausgeglichenheit. Lokale Konvexität. Die assoziierten lokalkonvexen Limitierungen. Initiaallimitierungen. Beziehungen zwischen Initiaallimitierungen und den Funktoren $\#$, $+$ und $\wedge$. Finallimitierungen bezüglich Gruppenhomomorphismen. Finallimitierungen bezüglich homogener Abbildungen. Finallimitierungen bezüglich linearer Abbildungen. Beziehungen zwischen Finallimitierungen und den Funktoren $\#$, $+$ und $\wedge$. Verallgemeinerte Halbmetriken und verallgemeinerte Halbnormen. Beschränktheitsbegriffe. Lokale Beschränktheit. Vervollständigung pseudotopologischer Vektorräume. Adjungierte Funktoren. Über reflektive und coreflektive Unterkategorien. Tensorprodukte und monoidale Kategorien. Hypobornologien. — *Mengenkonvergenz*: Der abgeschlossene Limes. Der Fall der mehrstufigen Topologie und der Topologie. Der offene Limes. Mengenkonvergenz, die von Systemen von $\wedge$ -Idealen von Dualfiltern abhängt. Drei Spezialfälle. — *Abbildungsräume*: Stetige Konvergenz. Abgeschlossene Konvergenz der Graphen. Der Fall, dass c eine mehrstufige Topologie bzw. eine Topologie ist. Die Räume $C_c(X, Y)$ und $L_c^n(X, Y)$. Punktweise Konvergenz. Kompaktheitskriterien bezüglich der stetigen Konvergenz. MARINESCU-Konvergenz. Abgeschlossene Kategorien. Verallgemeinerte gleichmässige Konvergenz. Die limesuniforme Struktur der verallgemeinerten gleichmässigen Konvergenz. Der Fall, dass Y eine abelsche pseudotopologische Gruppe ist. Drei Spezialfälle, Beispiele. Vergleich der verschiedenen Konvergenzarten. Die Räume $L_{B,k}^n(X, Y)$ und $H_{B,k}^n(X, Y)$. K -Uniformität, $\mathfrak{B}$, k -Gleichförmigkeit. Die Stetigkeit der Kompositions-

abbildung. — *Differentialrechnung*: Der allgemeine Ableitungsbegriff, Restglieddefinitionen nach GIL DE LAMADRID. Weitere Restglieddefinitionen. $\mathfrak{R}$ -Bereiche und der lokale Charakter der Differenzierbarkeit. Vergleich der verschiedenen Ableitungsbegriffe. Beispiele. Einige Differenzierbarkeitseigenschaften. Der Fundamentalsatz, die Kettenregel. Stetige Ableitungen, C^1 -Abbildungen. Partielle Ableitungen. Ableitungen höherer Ordnung. Einige Eigenschaften der Ableitungen höherer Ordnung. Restglieder höherer Ordnung. Der TAYLORSche Lehrsatz. Die Kettenregel höherer Ordnung. C^n -Abbildungen. Einige Eigenschaften der C^n -Abbildungen.

Franz-Josef FRITZ, B. HUPPERT, W. WILLEMS. — **Stochastische Matrizen.** — Hochschultext. — Un vol. broché, 16,5 × 24, de VII, 191 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Problemstellung. — Eigenwerte stochastischer Matrizen. — Die Konvergenzsätze. — Weitere Eigenwertabschätzungen für stochastische Matrizen. — Irrfahrten und verwandte Probleme. — Mischen von Spielkarten. — Warteschlangen. — Prozesse mit absorbierenden Zuständen. — Übergangszeiten. — Abgeleitete stochastische Matrizen.

Helmut WERNER, Robert SCHABACK. — **Praktische Mathematik II: Methoden der Analysis.** — Nach Vorlesungen an den Universitäten Münster und Göttingen, hrsg. mit Unterstützung von J. Ebert. — 2., neubearb. und erw. Auflage. — Hochschultext. — Un vol. broché, 16,5 × 24, de VIII, 388 p. — Prix: DM 38.00. — Springer Verlag, Berlin/Heidelberg, New York, 1979.

Interpolation: Polynominterpolation. Differenzenquotienten. Die numerische Behandlung der Interpolationsaufgabe; NEWTONsche Interpolationsformel. TSCHEBYSCHEFF-Systeme, Trigonometrische Interpolation. Rationale Interpolation. — *Approximationstheorie*: Der Existenzsatz für lineare Approximationen. Diskrete lineare TSCHEBYSCHEFF-Approximation. Der REMES-Algorithmus. Approximation in euklidischen Räumen. Orthogonale Funktionen. Der Satz von WEIERSTRASS. Konvergenz von Approximationen. — *Spline-Funktionen und die Darstellung linearer Funktionale*: Spline-Funktionen. Satz von PEANO und Charakterisierung von Spline-Funktionen. Interpolation mit Spline-Funktionen. *B-Splines*. Beste Approximationen linearer Funktionale. Numerische Integration. Konvergenzfragen bei der numerischen Quadratur. — *Numerische Methoden für Anfangswertprobleme bei gewöhnlichen Differentialgleichungen*: Definition und Aufgabenstellungen. Existenzsätze für die Lösung des Anfangswertproblems. Stetigkeitsbetrachtungen für Anfangswertprobleme. Die differenzierbare Abhängigkeit der Lösungen eines Anfangswertproblems von Parametern. Lineare Differentialgleichungen und Differenzengleichungen n -ter Ordnung mit konstanten Koeffizienten. Allgemeine Theorie der Einschrittverfahren. Klassische Einschrittverfahren. Spezielle Mehrschrittverfahren, Prädiktor-Korrektor-Methoden. Allgemeine lineare Mehrschrittverfahren. Asymptotische Entwicklung des Fehlers bei linearen Mehrschrittverfahren. Die Stabilitätsaussagen von DAHLQUIST.

H. B. GRIFFITHS, P. J. HILTON. — **A comprehensive textbook of classical mathematics: a contemporary interpretation.** — Reprint. — Un volume broché, 16 × 24, de XXIX, 637 p. — Prix: DM 44.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

The language of mathematics: Descriptive theory of sets. Functions: descriptive theory. The Cartesian product. Relations. Mathematical induction. — *Further set theory*: Sets of functions. Counting and transfinite arithmetic. Algebra of sets and the propositional

calculus. — *Arithmetic*: Commutative rings and fields. Arithmetic mod m . Rings with integral norm. Factorization into primes. Applications of the theory of HCF's. — *Geometry of $\mathbf{R}^3$* : Vector geometry of $\mathbf{R}^3$. Linear algebra and measure in $\mathbf{R}^3$. Appendix: length and area. The logic of geometry. Projective geometry. — *Algebra*: Groups. Vector spaces and linear equations. Inner product spaces and duality. Inequalities and Boolean algebra. Polynomials and equations of degree n . — *Number systems and topology*: The rational numbers. The real and complex numbers. Topology of $\mathbf{R}^n$. — *Calculus*: The algebra $\mathbf{R}^I$. Limiting processes. Continuous functions. Differentiable functions. Integration. — *Additional topics in the calculus*: The logarithm and the exponential function. Differential equations. Complex-valued functions. Approximation and iteration. Functions of several real variables. Vector-valued functions. C^r -functions. — *Foundations*: Categories and functors. Mathematical logic.

Sofya KOVALEVSKAYA. — **A Russian childhood.** — Translated, edited and introduced by Beatrice Stillman, with an analysis of Kovalevskaya's mathematics by P. Y. Kochina. — Un vol. relié, 16×24 , de xiv, 250 p. — Prix: DM 33.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Introduction. — Earliest memories. — The thief. — Metamorphosis. — Palibino. — Miss Smith. — Uncle Pyotr Vasilievich Krukovsky. — Uncle Fyodor Fyodorovich Shubert. — My sister. — Anyuta's nihilism. — Anyuta's first literary experiments. — Our friendship with Fyodor Mikhailovich Dostoevsky. — Notes. — An autobiographical sketch. — P. Y. Polubarinova-Kochina: "On the scientific work of Sofya Kovalevskaya".

Robert J. WALKER. — **Algebraic curves.** — Un vol. broché, $15,5 \times 23,5$. — Prix: DM 22.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978 (Reprint).

Algebraic preliminaries: Set theory. Integral domains and fields. Quotient fields. Linear dependence and linear equations. Polynomials. Factorization in polynomial domains. Substitution. Derivatives. Elimination. Homogeneous polynomials. — *Projective spaces*: Projective spaces. Linear subspaces. Duality. Affine spaces. Projection. Linear transformations. — *Plane algebraic curves*: Plane algebraic curves. Singular points. Intersection of curves. Linear systems of curves. Rational curves. Conics and cubics. Analysis of singularities. — *Formal power series*: Formal power series. Parametrizations. Fractional power series. Places of a curve. Intersection of curves. Plücker's formulas. Nöther's theorem. — *Transformations of a curve*: Ideals. Extensions of a field. Rational functions on a curve. Birational correspondence. Space curves. Rational transformations. Rational curves. Dual curves. The ideal of a curve. Valuations. — *Linear series*: Linear series. Complete series. Invariance of linear series. Rational transformations associated with linear series. The canonical series. Dimension of a complete series. Classification of curves. Poles of rational functions. Geometry on a non-singular cubic.

Shiing-shen CHERN. — **Selected papers.** — Published in conjunction with the International symposium in global analysis and global geometry to be held in Berkeley, Calif., June 1979. — Un vol. relié, 18×25 , de xxi, 476 p. — Prix: DM 52.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Foreword. — *André Weil*: S. S. Chern as a geometer and friend. — *Phillip A. Griffiths*: Some reflections on the mathematical contributions of S. S. Chern. — *S. S. Chern*: A summary of my scientific life and works. — *Suivi de 34 exposés choisis par S. S. Chern.* — *Bibliography of the publications of S. S. Chern.* — *List of Ph.D. theses written under the supervision of S. S. Chern.*

I. A. IBRAGIMOV, Y. A. ROZANOV. — **Gaussian random processes.** — Translated by A. B. Aries. — Applications in mathematics, vol. 9. — Un vol. relié, 17 × 25, de x, 275 p. — Prix: DM 49.60. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Preliminaries: Gaussian probability distribution in a Euclidean space. Gaussian random functions with prescribed probability measure. Lemmas on the convergence of Gaussian variables. Gaussian variables in a Hilbert space. Conditional probability distributions and conditional expectations. Gaussian stationary processes and the spectral representation. — *The structures of the spaces $H(T)$ and $L_T(F)$:* The spaces $L^+(F)$ and $L^-(F)$. The construction of spaces $L_T(F)$ when T is a finite interval. The projection of $L^+(F)$ on $L^-(F)$. The structure of the σ -algebra of events $\mathfrak{U}(T)$. — *Equivalent Gaussian distributions and their densities:* Some conditions for Gaussian measures to be equivalent. General conditions for equivalence and formulas for density of equivalent distributions. Further investigation of equivalence conditions. — *Conditions for regularity of stationary random processes:* Regularity conditions and operators $B\tau$. Conditions for information regularity. Conditions for absolute regularity and processes with discrete time. Conditions for absolute regularity and processes with continuous time. — *Complete regularity and processes with discrete time:* Definitions and preliminary constructions with examples. The first method of study: local conditions. Local conditions (Continued). Corollaries to the basic theorems with examples. Intensive mixing. — *Complete regularity and processes with continuous time:* The investigation of a particular function $\gamma(T; \mu)$. The proof of the basic theorem on necessity. The behavior of the spectral density on the entire line. Sufficiency. A special class of stationary processes. — *Filtering and estimation of the mean:* Unbiased estimates. Estimation of the mean value and the method of least squares. Consistent pseudo-best estimates. Estimation of regression coefficients.

Yuan Shih CHOW, Henry TEICHER. — **Probability theory: independence, interchangeability, martingales.** — Un vol. relié, 17 × 25, de xv, 455 p. — Prix: DM 55.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Classes of sets, measures, and probability spaces. — Binomial random variables. — Independence. — Integration in a probability space. — Sums of independent random variables. — Measure extensions, Lebesgue-Stieltjes measure, Kolmogorov consistency theorem. — Conditional expectation, conditional independence, introduction to martingales. — Distribution functions and characteristic functions. — Central limit theorems. — Limit theorems for independent random variables. — Martingales. — Infinitely divisible laws.

F. REHBOCK. — **Geometrische Perspektive.** — Un vol. relié, 17 × 25, de ix, 155 p. — Prix: DM 29.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Die Zentralprojektion: Aufgabe der geometrischen Perspektive. Bezeichnungen. Zentralbilder. Schatten und Lichtbild. Die Distanz. Verzerrungen. Grundprobleme. Parallele und rechtwinklige Geraden. Winkel und Strecken von gegebener Grösse. Kurze historische Übersicht. — *Parallele Geraden und Ebenen:* Der Fluchtpunkt. Der Verschwindungspunkt. Die Fluchtlinie. Die Verschwindungslinie. Spezielle Geraden. Spezielle Ebenen. Ein Beispiel für Breiten Ebenen. Ein Beispiel für Tiefen Ebenen. Verschieben und Teilen von Strecken. Das Verschneiden von Ebenen. — *Rechtwinklige Geraden und Ebenen:* Normalen und Normalebenen. N -Fluchtpunkt und N -Fluchtlinie. Fluchtdreieck eines Achsenkreuzes. Bild eines Quaders in allgemeiner Lage. Ausgeartete Fluchtdreiecke. Front- und Eckansichten. Kippansichten. Vogel- und Froschperspektive. — *Winkelmessung:* Der Winkelmesspunkt. Der Drehsehnenfluchtpunkt. Winkel in Tiefen Ebenen.

Winkel in vertikalen und geneigten Ebenen. Figuren in Wänden. Figuren in Horizontal-ebenen. Figuren in geneigten Ebenen. Theoretisches Intermezzo: Die Perspektivität. — *Streckenmessung*: Der Streckenmesspunkt. Einzeichnen und Messen von Strecken. Achsenmassstäbe für Eckansichten. Beispiele. Kippansichten. Bild eines Kreises. Aus-messen und Ergänzen von Bildern. Rechnerische Methoden. — *Anwendungen und Ergän-zungen*: Schattenkonstruktionen. Die Ellipse als Kreisbild. Die Hyperbel als Kreisbild. Ellipsenkonstruktionen. Hyperbel- und Parabelkonstruktionen. Das Aufbauverfahren. Das Schichtenverfahren. Gebundene Perspektive. — *Bilder ohne Texte* — *Anregungen*.

Ferenc SZIDAROVSKY and Sidney YAKOWITZ. — **Principles and procedures of numerical analysis.** — Mathematical concepts and methods in science and engineering, vol. 14. — Un vol. relié, 16 × 24, de VII, 331 p. — Prix: \$29.40. — Plenum Press, New York/London, 1978.

Preliminaries: Number systems and representations of numbers. Error analysis. Supplementary notes and discussion. — *Approximation and interpolation of functions*: Interpolating polynomials. Uniform approximations. Least squares approximation. Spline functions. Asymptotic properties of polynomial approximations. Supplementary notes and discussion. — Numerical differentiation and integration: Numerical differen-tiation. Numerical quadrature. Supplementary notes and discussion. — *General theory for iteration methods*: Metric spaces. Examples of metric spaces. Operators on metric spaces. Examples of bounded operators. Iterations of operators. Fixed-point theorems. Systems of operator equations. Norms of vectors and matrices. The order of convergence of an iteration process. Inner products. Supplementary notes and discussion. — *Solution of nonlinear equations*: Equations in one variable. Solution of polynomial equations. Systems of nonlinear equations and nonlinear programming. Supplementary notes and discussion. — *The solution of simultaneous linear equations*: Direct methods. Iteration methods. Matrix conditioning and error analysis. Supplementary notes and discussion. — *The solution of matrix eigenvalue problems*: Preliminaries. Some basic eigenvalue approxi-mation methods. The QR algorithm. Eigenproblem error analysis. Supplementary notes and discussion. — *The numerical solution of ordinary differential equations*: The solution of initial-value problems. The solution of boundary-value problems. The solution of eigenvalue problems. Supplementary notes and discussion. — *The numerical solution of partial differential equations*: The difference method. The method of quasilinearization. The Ritz-Galerkin finite-element approach. Supplementary notes and discussion.

David WILLIAMS. — **Diffusions, Markov processes, and martingales. Volume 1: Found-ations.** — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de XIII, 237 p. — Prix: £13.50. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1979.

INTRODUCTION TO BROWNIAN MOTION: *Wiener measure*: Wiener's theorem. A con-verse. Diffusions. Canonical and non-canonical processes. Martingale descriptions of Brownian motion. Lévy's theorem. Trotter's theorem. Local and global properties. Blumenthal's 01 law. Kolmogorov's test. Iterated-logarithm law. Hölder condition. Completions, almost surely. — *Narrow convergence*: Donsker invariance principle. Polish spaces. Narrow convergence of measures. Prohorov's theorem. Narrow convergence in $Pr(W)$. — *Brownian motion in R^n* : Potential theory. Equilibrium potential. Bessel processes. Skew product. Ray-Knight theorem on local time. — SOME CLASSICAL THEORY: *Basic measure theory*: Monotone-class theorems. Daniell-Kolmogorov theorem. Its limitations. Fubini's theorem. Infinite products. Poisson measures. Stochastic process. Modification. — *Classical martingale theory*: Uniform integrability. Conditional expecta-

tions and probabilities. Discrete-parameter martingales. Continuous-parameter supermartingales. Basic definitions. Skorokhod (càdlàg) maps. Doob's regularity theorem. The "usual conditions". Indistinguishability, evanescence. Inequalities and the convergence theorem. Stopping times. Début and section theorems. Stopping times and supermartingales. — *Applications*: Proof of Wiener's theorem. Strong Markov theorem for Brownian motion. Hitting-times, reflection principle, etc. Lévy's downcrossing theorem. Local time. Hitting-time process as subordinator. Pitman's presentation of 3-dimensional Bessel process. Excursion theory. — *Regular conditional probabilities*: Main theorem. Fundamental statements of Markov property. — **MARKOV PROCESSES**: *Transition functions and resolvents*: Definitions. Hille-Yosida theorems. — *Feller transition functions*: Feller-Dynkin (FD) semigroups. Dynkin's maximum principle. — *Feller-Dynkin processes*: Path regularization. Canonical FD process. Strong Markov theorem for FD processes. Completions. Blumenthal's 01 law. Some fundamental martingales, Dynkin's formula. Quasi-left continuity. Characteristic operator. FD diffusions. Dirichlet problem. — *Additive functionals*: Some basic facts about PCHAFs. Killing. Time-substitution. Volkonskii's formula, Arcsine law, Feller-McKean chain. Feynmann-Kac formula. A Ciesielski-Taylor theorem. Elastic Brownian motion. — *Ray processes*: Motivation. Martin boundary theory for discrete-parameter chains. Probabilistic Doob-Hunt theory (discrete-parameter chains). R. S. Martin's boundary. Doob-Hunt theory for Brownian motion. Ray's theorem: preparatory remarks. Ray-Knight compactification. Ray resolvents. Ray's theorem: analytic part. Branch-points. Ray's theorem: probabilistic part. Strong Markov theorem for Ray processes. The rôle of branch-points. — *Applications*: Martin boundary theory in retrospect. Proof of the Doob-Hunt convergence theorem. Choquet representation of excessive functions. Doob's h -transforms. Time-reversal and related topics. Nagasawa's formula. Strong Markov property under time-reversal. Equilibrium charge. Splitting-times. A first look at chain theory. Chains as Ray processes. Taboo probabilities, first-entrance decompositions. The Q -matrix: DK conditions. Local character condition for Q . Totally instantaneous Q -matrices. Last exits. Excursions. Kingman's solution of the Markov characterization problem. Q -matrix problem: symmetrizable case.

Mathematics today: Twelve informal essays. — Edited by Lynn Arthur Steen. — Un vol. relié, 17 × 24, de viii, 367 p. — Prix: DM 27.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Lynn Arthur Steen: Mathematics today. — *Allen L. Hammond*: Mathematics. Our invisible culture. — *Ian Richards*: Number theory. — *Jonathan Alperin*: Groups and symmetry. — *Roger Penrose*: The geometry of the universe. — *Philip Thompson*: The mathematics of meteorology. — *Kenneth Appel and Wolfgang Haken*: The four color problem. — *Ronald Graham*: Combinatorial scheduling theory. — *David S. Moore*: Statistical analysis of experimental data. — *Martin Davis*: What is a computation? — *Jacob Schwartz*: Mathematics as a tool for economic understanding. — *Frank C. Hoppensteadt*: Mathematical aspects of population biology. — *Felix E. Browder and Saunders Mac Lane*: The relevance of mathematics.

Mathematics: An introduction to its spirit and use. — With introductions by Morris Kline. — Readings from Scientific American. — Un vol. broché, 21 × 29, de 249 p. — Prix: \$8.80. — W. H. Freeman and Company, San Francisco, 1979.

HISTORY: Introduction. — *James R. Newman*: The Rhind papyrus. — *James R. Newman*: Review of "Cardano, the gambling scholar" by Ore. — *James R. Newman*: Review of "Blaise Pascal: the life and work of a realist" by Mortimer. — *A. C. Crombie*: Des-

cartes. — *I. Bernard Cohen*: Review of "The mathematical papers of Isaac Newton, volume 1: 1664-1666" edited by Whiteside. — *Frederick C. Kreiling*: Leibniz. — *Carl B. Boyer*: The invention of analytic geometry. — NUMBER AND ALGEBRA: *Introduction*. — *Martin Gardner*: The remarkable lore of the prime numbers. — *David Hawkins*: Mathematical sieves. — *Martin Gardner*: A short treatise on the useless elegance of perfect numbers and amicable pairs. — *Martin Gardner*: Diophantine analysis and the problem of Fermat's legendary "last theorem". — *Paul S. Herwitz*: The theory of numbers. — *Martin Gardner*: The hierarchy of infinities and the problems it spawns. — *Philip J. Davis*: Number. — GEOMETRY: *Introduction*. — *Martin Gardner*: Geometric constructions with a compass and a straightedge, and also with a compass alone. — *Martin Gardner*: Elegant triangle theorems not to be found in Euclid. — *Martin Gardner*: Diversions that involve one of the classic conic sections: the ellipse. — *Martin Gardner*: Curves of constant width, one of which makes it possible to drill square holes. — *Martin Gardner*: Curious properties of a cycloid curve. — *Morris Kline*: Projective geometry. — *Martin Gardner*: Geometric fallacies: hidden errors pave the road to absurd conclusions. — *Leonhard Euler*: The Koenigsberg bridges (edited by James R. Newman). — *Martin Gardner*: Various problems based on planar graphs, or sets of "vertices" connected by "edges". — *Martin Gardner*: Topological diversions including a bottle with no inside or outside. — *Morris Kline*: Geometry. — STATISTICS AND PROBABILITY: *Introduction*. — *Warren Weaver*: Statistics. — *Rudolf Carnap*: What is probability? — *Warren Weaver*: Probability. — *Martin Gardner*: On the fabric of inductive logic, and some probability paradoxes. — SYMBOLIC LOGIC AND COMPUTERS: *Introduction*. — *Martin Gardner*: Boolean algebra, Venn diagrams and the propositional calculus. — *John E. Pfeiffer*: Symbolic logic. — *David C. Evans*: Computer logic and memory. — *Louis N. Ridenour*: The role of the computer. — APPLICATIONS: *Introduction*. — *Hugh Lineback*: Musical tones. — *Frederick A. Saunders*: Physics and music. — *A. G. Dalton*: The practice of quality control. — *Leonid Hurwicz*: Game theory and decisions. — *Oskar Morgenstern*: The theory of games. — *William W. Cooper and Abraham Charnes*: Linear programming. — *Horace C. Levinson and Arthur A. Brown*: operations research. — *Solutions to problems in Martin Gardner's articles*.

Otto STEINFELD. — **Quasi-ideals in rings and semigroups**. — *Disquisitiones mathematicae hungaricae*, vol. 10. — Un vol. relié, 17,5 × 24,5, de xi, 154 p. — Prix: \$14.50. — Akadémiai Kiadó, Budapest, 1978.

Basic concepts. Elementary properties of quasi-ideals. Examples. On Green's $\mathcal{H}$ -relation. On minimal quasi-ideals of semigroups without 0. On minimal (0-minimal) quasi-ideals of rings (semigroups). On minimal (0-minimal) quasi-ideals of semiprime rings (semiprime semigroups). Some decomposition theorems for semiprime rings. Characterizations of regular elements, rings and semigroups by quasi-ideals. Decomposition theorems for regular semigroups. On regular duo elements, rings and semigroups. On some directions of generalizations. — APPENDIX: *Quasi-absorbents in groupoid-lattices*: Basic concepts and examples. On regular and regular duo elements. The main decomposition theorem. Proof of theorem. Some special decomposition theorems. List of problems.

Ryszard ENGELKING. — **Dimension theory**. — North Holland mathematical library, vol. 19. — Un vol. relié, 16 × 23, de ix, 305 p. — Prix: Dfl. 100.00. — North Holland Publishing Company, Amsterdam/Oxford/New York (published in co-edition with) PWN-Polish Scientific Publishers, Warszawa, 1978.

DIMENSION THEORY OF SEPARABLE METRIC SPACES: Definition of the small inductive dimension. The separation and enlargement theorems for dimension 0. The sum, Cartesian product, universal space, compactification and embedding theorems for dimension 0. Various kinds of disconnectedness. The sum, decomposition, addition, enlargement, separation and Cartesian product theorems. Definitions of the large inductive dimension and the covering dimension. Metric dimension. The compactification and coincidence theorems. Characterization of dimension in terms of partitions. Dimensional properties of Euclidean spaces and the Hilbert cube. Infinite-dimensional spaces. Characterization of dimension in terms of mappings to spheres. Cantor-manifolds. Cohomological dimension. Characterization of dimension in terms of mappings to polyhedra. The embedding and universal space theorems. Dimension and mappings. Dimension and inverse sequences of polyhedra. Dimension and axioms. — **THE LARGE INDUCTIVE DIMENSION:** Hereditarily normal and strongly hereditarily normal spaces. Basic properties of the dimension Ind in normal and hereditarily normal spaces. Basic properties of the dimension Ind in strongly hereditarily normal spaces. Relations between the dimensions ind and Ind . Cartesian product theorems for the dimension Ind . — **THE COVERING DIMENSION:** Basic properties of the dimension dim in normal spaces. Relations between the dimension ind , Ind and dim . Characterizations of the dimension dim in normal spaces. Cartesian product theorems for the dimension dim . The compactification and the universal space theorems for the dimension dim . The dimension dim and inverse systems of compact spaces. — **DIMENSION THEORY OF METRIZABLE SPACES:** Basic properties of dimension in metrizable spaces. Characterizations of dimension in metrizable spaces. The universal space theorem. Dimension and mappings in metrizable spaces.

V. G. BOLTYANSKII. — **Optimal control of discrete systems.** — Translated from the Russian by Ron Hardin. — Un vol. relié, 18 × 25, de x, 392 p. — Prix: £28.00. — John Wiley & Sons, New York/Toronto, (published in co-edition with) Israel Program for Scientific Translation, Jerusalem (distr. by Halsted Press, a division of John Wiley & Sons), 1978.

STATEMENT OF PROBLEM AND NATURE OF RESULTS: *Optimization of discrete processes:* Maximum of product. Some applied problems. Optimal control of discrete objects. Other statements of discrete-control problems. Maximization of several functionals. — *Connection between discrete-optimization problems and other extremum problems:* Extremum of function. Problem of mathematical programming. Controlled processes with continuous time. — *Methods of solving discrete-optimization problems:* Dynamic programming. Discrete maximum principle. Ideas of mathematical programming. — **BASIC CONCEPTS OF MULTIDIMENSIONAL GEOMETRY:** *Vector space:* Definition of vector space. Dimension and basis. Subspace. Homomorphisms of vector spaces. Euclidean vector space. — *Euclidean geometry:* Definition of affine space. Planes in affine space. Affine mappings. Affine functions. Euclidean space. Topology of Euclidean space. Coordinates. — **ELEMENTS OF THEORY OF CONVEX SETS:** *Convex sets:* Definition of convex set. Convex hull. Boundary of convex field. Convex polyhedron. — *Supporting properties of convex sets:* Supporting cone. Affine function on a convex set. — *Theorems on separability of convex cones:* Separation of convex sets. Dual cone. Separability of system of convex cones. — **EXTREMA OF FUNCTIONS:** *Existence theorems:* Tangent mapping. Covering of set. Theorem on intersection. — *Extremum criteria:* Necessary condition for extremum of function. Sufficient condition for extremum of function. Maximum principle. Method of dynamic programming. — **OPTIMALITY CRITERIA FOR DISCRETE PROCESSES:** *Dynamic programming:* Description of method. Connection with theory of extrema of functions. — *Necessary conditions for optimality:* Fundamental problem. Problem with phase con-

straints. Existence theorem. Discrete objects with variable control domain. Discrete maximum principle (method of local sections). — *Sufficient conditions for optimality*: Objects with constant control domain. Objects with variable control domain.

A. F. BEARDON. — **Complex analysis: The argument principle in analysis and topology.** — A Wiley-Interscience publication. — Un vol. relié, $15,5 \times 23,5$, de xiii, 239 p. — Prix: £14.00. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1979.

ANGLES: Sets. Complex numbers. Upper bounds. Square roots. Distance. Infinite series. Tests for convergence. The Cauchy product. Continuity. Real continuous functions. The exponential function. The trigonometric functions. Periodicity. The hyperbolic functions. The argument of a complex number. Logarithms. Exponents. Continuity of the logarithm. — BASIC COMPLEX ANALYSIS: Open and closed sets. Connected sets. Limits. Compact sets. Homeomorphisms. Uniform convergence. Plane curves. The index of a curve. Properties of the index. Polynomials. Power series. Analytic functions. Inequalities. The zeros of analytic functions. Derivatives. Line integrals. Inequalities. Chains and cycles. Evaluation of integrals. Cauchy's theorem. Applications. Conformal mapping. Stereographic projection. Möbius transformations. — INTERACTIONS WITH PLANE TOPOLOGY: Simply connected domains. The Riemann mapping theorem. Branches of the argument. The Jordan curve theorem. Conformal mapping of a Jordan domain.

Peter YODZIS. — **Competition for space and the structure of ecological communities.** — Lecture notes in biomathematics, vol. 25. — Un vol. broché, $16,5 \times 24$, de vi, 191 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Introduction: Competition for space. Spatial competition and the niche. Modelling competition for space. Limitations of this study. Colonization. Preview. — *Founder controlled communities*: Colonization equilibria. Stability. Total standing crop. Summary. — *Dominance controlled communities*: Numerical dominance and functional dominance. The reshuffle. Quasicycles and lotteries. Equilibrium communities. Invasion and succession. Other forms of dispersal. Summary. — *Harvesting*: Harvesting. The reshuffle. Influence of harvesting: theoretical. Species richness: observational. Disturbance. Summary. — *Epilogue*: Spatial competition and the niche reconsidered. Species packing and the relation between plant and animal diversity. Evolutionary considerations and the tropical rain forest. — *Appendix A: Perturbation theory*: Perturbed equilibria. Perturbed stability matrices. Calculation of Λ . — *Appendix B: Some Lotka-Volterra formulae*: One-species equilibria. Two-species equilibria. — *Appendix C: Harvesting and two-species interactions*.

T. W. GAMELIN. — **Uniform algebras and Jensen measures.** — London mathematical Society lecture note series, vol. 32. — Un vol. broché, 15×23 , de 162 p. — Prix: £6.50. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1978.

Preface. — Choquet theory. — Classes of representing measures. — The algebra $R(K)$. — The Corona problem for Riemann surfaces. — Subharmonicity with respect to a uniform algebra. — Algebras of analytic functions. — The conjugation operation for representing measures. — The conjugation operation for Jensen measures. — Moduli of functions in $H^2(\sigma)$.

Erich MARTENSEN. — **Analysis III: gewöhnliche Differentialgleichungen.** — Für Mathematiker, Physiker, Ingenieure. — B. I.-Hochschultaschenbücher, vol. 834. — Un vol. broché, 12,5 × 19, de v, 209 p. — Prix: DM 8.90. — Bibliographisches Institut-Wissenschaftsverlag, Mannheim/Wien/Zürich, 1971.

Die homogene Schwingungsdifferentialgleichung. — Die spezielle homogene lineare Differentialgleichung. — Das Fundamentalsystem. — Die homogene lineare Differentialgleichung erster Ordnung. — Reduktion der Ordnung. — Der Potenzreihenansatz. — Das Anfangswertproblem für Umgebungen. — Das Anfangswertproblem für einfach zusammenhängende Gebiete. — Die inhomogene lineare Differentialgleichung. — Reell-analytische Probleme. — Die lineare Differentialgleichung erster Ordnung im Reellen. — Die inhomogene Schwingungsdifferentialgleichung. — Zylinderfunktionen und BESSELSche Differentialgleichung. — BESSELSche Funktionen. — Die allgemeine Zylinderfunktion mit nichtnegativ ganzem Index. — Uneigentliche Integrale. — HANKELsche Funktionen-Integraldarstellung und Folgerungen. — Das asymptotische Verhalten der HANKEL-funktionen. — Die HANKELschen Funktionen als Zylinderfunktionen. — EULERSche Relationen und NEUMANNsche Funktionen. — Die LEGENDRESche Differentialgleichung. — Randwertprobleme für Differentialgleichungen zweiter Ordnung. — Systeme von Differentialgleichungen. — Gekoppelte Schwingungen. — Funktionenfolgen und -reihen, gleichmässige Konvergenz. — Gliedweise Integration und Differentiation. — FOURIERSche Reihen. — Das Iterationsverfahren von PICARD-LINDELÖF.

Erich MARTENSEN. — **Analysis V: Funktionalanalysis und Integralgleichungen.** — Für Mathematiker, Physiker, Elektrotechniker. — B. I.-Hochschultaschenbücher, vol. 768. — Un vol. broché, 12,5 × 19, de vi, 273 p. — Prix: DM 9.90. — Bibliographisches Institut-Wissenschaftsverlag, Mannheim/Wien/Zürich, 1972.

Vektorräume. — Dimension, Basis, Komponenten. — Untervektorräume. — Normierte Vektorräume. — Konvergenz in normierten Vektorräumen. Vollständigkeit. — Kompaktheit. — Die Sätze von HAUSDORFF und HEINE-BOREL. — WEIERSTRASSapproximation. — TSCHEBYSCHEFFapproximation. — Funktionen, Operatoren, Funktionale. — Stetigkeit, gleichmässige Stetigkeit, LIPSCHITZstetigkeit. — Vollstetigkeit und Satz von ARZELA-ASCOLI. — Die RIESZsche Theorie für vollstetige lineare Operatoren. — Die FREDHOLMsche Theorie für vollstetige lineare Operatoren. — FREDHOLMsche Integralgleichungen zweiter Art. — Das BANACHsche Fixpunktprinzip. — Die Regula falsi — ein nichtlineares Fixpunktproblem. — Die NEUMANNsche Reihe. Iteration linearer Gleichungssysteme und Integralgleichungen. — VOLTERRAsche Integralgleichungen. — Konvexität. — Das SCHAUDERSche Fixpunktprinzip. — Der Raum der stetigen linearen Funktionen. — Die BANACHalgebra der stetigen linearen Operatoren. — Das Prinzip der Normbeschränktheit. — Fortsetzung stetiger linearer Funktionale. — Der duale Raum. — Schwache Konvergenz. — Der Basisbegriff für unendlichdimensionale Räume. Separabilität. — PraehILBERT- und HILBERTräume. — Orthogonalfolgen und -reihen.

Franz LOCHER. — **Einführung in die numerische Mathematik.** — Die Mathematik. — Un vol. broché, 13,5 × 21,5, de xv, 265 p. — Prix: DM 43.00. — Wissenschaftliche Buchgesellschaft, Darmstadt, 1978.

FEHLERTHEORIE: Fehlertheorie. — ITERATIVE VERFAHREN ZUR LOESUNG VON NICHTLINEAREN GLEICHUNGEN: Das Iterationsverfahren für kontrahierende Abbildungen. Iterative Berechnung von Nullstellen reeller Funktionen. — POLYNOME: Polynomnull-

stellen und Polynomauswertung. Numerische Verfahren zur Berechnung von Polynomnullstellen. — ITERATIVE VERFAHREN ZUR LÖSUNG LINEARER GLEICHUNGSSYSTEME: Normen. Iterative Methoden zur Lösung von Gleichungssystemen. — ELIMINATIONSVERFAHREN BEI LINEAREN GLEICHUNGSSYSTEMEN UND FEHLERANALYSE: Eliminationsverfahren zur Lösung linearer Gleichungssysteme. Fehleranalyse. — EIGENWERTPROBLEME BEI MATRIZEN: Das Verfahren von Givens-Householder für Hermitesche Matrizen. Die Iterationsverfahren nach V. Mises und Wielandt. — INTERPOLATION: Interpolation von Daten. Interpolation von Funktionen und Interpolationsfehler. — NUMERISCHE INTEGRATION: Elementare Quadraturformeln. Monosplines und Quadraturformeln. Interpolatorische Quadraturformeln. Gauss-Quadraturformeln. Das Romberg-Verfahren. — KONVERGENZ UND DIVERGENZ VON FOLGEN LINEARER OPERATOREN: Die Approximationssätze von Weierstrass, Bernstein und Korovkin. Konvergenz und Divergenz von Interpolations- und Quadraturverfahren. — APPROXIMATION: Approximation in Prä-Hilbert-Räumen. Fourier- und Cebyshev-Approximationen.

Kenneth A. BOWEN. — **Model theory for modal logic**: Kripke models for modal predicate calculi. — Synthese library, vol. 127. — Un vol. broché, 16 × 23, de x, 127 p. — Prix: Dfl. 50.00. — D. Reidel, Dordrecht/Boston/London, 1979.

Syntactic considerations. — Modal structures and morphisms. — Validity. — Completeness. — Löwenheim-Skolem theorems. — Ultraproducts. — Ultrafilter pairs and elementary embeddings. — Direct limits. — Model extensions. — Inductive theories. — Joint consistency and interpolation. — Model completeness. — Finite forcing. — Forcing and model completions. — Omitting types and a two-cardinal theorem. — Appendix: Semantic tableaux methods.

William C. CHINN, Richard A. DEAN, Theodore N. TRACEWELL. — **Arithmetic and calculators**: how to deal with arithmetic in the calculator age. — Un vol. broché, 17 × 23,5, de vii, 488 p. — Prix: \$11.00. — W. H. Freeman, San Francisco, Ca., 1978.

Getting started on your calculator. — Counting and decimal notation. — Addition and subtraction with numbers in decimal notation. — Multiplication and division of decimal numbers. — Geometric applications. — Negative numbers. — Powers, exponents, and scientific notation. — Rational numbers. — Percent and interest. — Rates, ratios, and similarity. — More about integers. — Roots. — Appendix A: How do you think of numbers? — Appendix B: California-Nevada mileage chart. — Appendix C: Answers to exercises.

C. G. GIBSON. — **Singular points of smooth mappings**. — Research notes in mathematics, vol. 25. — Un vol. broché, 17 × 24,5, de 239 p. — Prix: £8.00. — Pitman publ., London/San Francisco/Melbourne, 1979.

Smooth manifolds and mappings: A preliminary review of some calculus. Smooth manifolds. The differential of a smooth mapping. Vector fields and flows. Germs of smooth mappings. — *Transversality*: The notion of transversality. The basic transversality lemma. An elementary transversality theorem. Thom's transversality theorem. First order singularity sets. — *Unfoldings: The finite dimensional model*: Groups acting on sets. — Some geometry of jets. Smooth actions of Lie groups on smooth manifolds. Transversal unfoldings. Versal unfoldings. — *Singular points of smooth functions*: Some

basic geometric ideas. The algebra ε_n . Determinacy of germs. Classification of germs of codimensions ≤ 5 . — *Stable singularities of smooth mappings*: The basic ideas. Contact equivalence. Deformations under $\mathcal{R}$ -equivalence. Classification of stable germs. Higher order singularity sets. Classifying germs under $\mathcal{H}$ -equivalence. Some examples of classifying stable germs. Singular points of stable mappings.

Chris J. S. PETRIE. — **Elongational flows**: aspects of the behaviour of model elasticoviscous fluids. — Research notes in mathematics, vol. 29. — Un vol. broché, $17 \times 24,5$, de 254 p. — Prix: £9.00. — Pitman Publ., London/San Francisco/Melbourne, 1979.

INTRODUCTION: Historical note. Polymer melts and solutions. — CONSTRUCTIVE EQUATIONS: Incompressible elasticoviscous fluids. Material functions. Basic elongational flows. — EXPERIMENTAL METHODS AND RESULTS: Uniaxial stretching. — Biaxial stretching. Spinning and related flows. — FLOW CLASSIFICATION: Weak and strong flows. Two dimensional flows. Elongational flows. — THEORETICAL ANALYSIS OF STRETCHING: Stretching the Jeffreys liquid. Stretching the Maxwell liquid. Review. — THEORY OF SPINNING: The simplified initial value problem. Boundary conditions. Mechanics of Newtonian jets. Stability. — CONCLUDING REMARKS: Converging flow. Nearly extensional flows. Applications.

Collected papers of G. H. HARDY, including joint papers with J. E. Littlewood and others, volume 7. — Ed. by a committee appointed by the London Mathematical Society. — Un vol. relié, $20 \times 26,5$, de xviii, 897 p. — Prix: £20.00. — Clarendon Press, Oxford, 1979.

Integral equations and integral transforms: Fourier transforms: 28 papers between 1904-1947. Integral equations: 6 papers between 1909 and 1936. — *Miscellaneous papers*: Set theory: 5 papers between 1904 and 1910. Differential equations: 2 papers, from 1912 and from 1939. The Hardy-Weinberg law: 1 paper from 1908. Elementary and expository notes: 7 papers between 1907 and 1945. Addresses, invited lectures, etc.: 11, between 1917 and 1940. — *Questions from "The educational times"*: 44, between 1899 and 1917. — 12 *obituary notices* by G. H. Hardy. — *Book reviews* by G. H. Hardy: 26 reviews from "The Mathematical Gazette", 5 reviews from "Nature", 3 reviews from "The Times Literary Supplement", 1 review from "The Cambridge Review". — *List of other writings*: List of books by G. H. Hardy. — *Obituary notices of G. H. Hardy and other writings concerning his life and work*: List of writings about Hardy. Arrangement of the Volumes. Complete list of Hardy's mathematical papers. Complete list of obituary notices by Hardy.

Probability on Banach spaces. — Edited by James Kuelbs. — Advances in probability and related topics, vol. 4. — Un vol. relié, 16×24 , de ix, 521 p. — Prix: Sfr. 105.00. — Marcel Dekker, Inc., New York/Basel, 1978.

Alejandro de Acosta, Aloisio Araujo, Evarist Giné: On Poisson measures, Gaussian measures, and the central limit theorem in Banach spaces. — Alexandra Bellow: Submartingale characterization of measurable cluster points. — Naresh C. Jain and Michael B. Marcus: Continuity of subgaussian processes. — Ulrich Krengel, Louis Sucheston: On semiamarts, amarts, and processes with finite value. — Wojbor A. Woyczyński: Geometry and martingales in Banach spaces, part 2: independent increments.

Nonlinear analysis and mechanics: Heriot-Watt symposium, vol. 3. — Ed. by R. J. Knops. — Research notes in mathematics, vol. 30. — Un vol. broché, $17,5 \times 24$, de 173 p. — Prix: £7.50. — Pitman, London/San Francisco/Melbourne, 1979.

M. E. Gurtin and R. C. MacCamy: Population dynamics with age dependence: Classical theories; linear theory with age dependence; nonlinear theory with age dependence.

Proceedings of the international meeting on recent methods in non-linear analysis, Rome, May 8-12, 1978. — Ed. by E. DeGiorgi, E. Magenes, U. Mosco. — Un vol. relié, 18×25 , de 669 p. — Prix: Lit. 25.000. — Pitagora editrice, Bologna, 1979.

Free boundary problem and some special non linear problems: 8 exposés par C. Baiocchi, L. Caffarelli, A. Damlamian, J. Frehse, A. Friedman, F. Mignot-J. P. Puel, J. Spruch, R. Temam. — *Convergence of functionals and of differential operators; homogeneization*: 11 exposés par: A. Attouch, L. Boccardo-I. Capuzzo-Dolcetta-M. Matzeu, E. DeGiorgi, J. L. Lions, P. Marcellini, L. Modica, F. Murat, L. C. Piccinini, J. P. Puel, S. Spagnolo, T. Zolezzi. — *Variational and quasi variational inequalities and optimal stochastic control*: 10 exposés par A. Bensoussan, M. Biroli, H. Brezis, P. Charrier, B. Hanouzet-J. L. Joly, M. Langlais, J. M. Lasry-P. Courrège, J. P. Quadrat-P. Colleter-F. Delebecque-F. Falgarone, G. M. Troianiello-M. G. Garroni. — *Related problems of numerical analysis*: 5 exposés par I. Babuska-W. C. Rheinboldt, F. Brezzi, V. Comincioli, E. Rofman-R. L. Gonzales, F. Scarpini. — "Round table" on mathematical models in energy production and management: 5 exposés par C. Ciliberto, A. Ruberti, P. Lederer-F. Falgarone, E. Mariani, G. Quazza.

Irving W. BURR. — **Elementary statistical quality control.** — Statistics: textbooks and monographs, vol. 25. — Un vol. relié, 16×24 , de xi, 413 p. — Prix: Sfr. 35.00. — Marcel Dekker, New York/Basel, 1979.

Why statistics? — Characteristics of data and how to describe them. — Simple probability. — Three basic laws for attribute data. — Control charts in general. — Control charts for attributes: process control. — Control charts for measurements: process control. — Further topics in control charts and applications. — Acceptance sampling for attributes. — Some standard sampling plans for attributes. — Sampling by variables. — Tolerances for mating parts and assemblies. — Studying relationships between variables by linear correlation and regression. — A few reliability concepts.

Lee J. BAIN. — **Statistical analysis of reliability and lifetesting models: theory and methods.** — Statistics: textbooks and monographs, vol. 24. — Un vol. relié, 16×24 , de xii, 450 p. — Prix: Sfr. 80.00. — Marcel Dekker, New York/Basel, 1978.

Probabilistic models: Probability. Probability distribution functions. Familiar univariate probability distribution functions. Properties of random variables. — *Basic statistical inference*: Introduction. Order statistics. Descriptive statistics. Sufficiency and completeness. Sufficiency and independence. Sufficiency in the presence of nuisance parameters. Invariance. Principles and methods of estimation. Principles of hypothesis testing and interval estimation. — *The exponential distribution*: Properties of the exponential distribution. Statistical inferences for one-parameter exponential distribution, $X \sim EXP(\theta)$. One-parameter exponential distribution. Type II censored sampling. One-parameter exponential distribution. Type I censored sampling. Censored sampling with replacement. Two-parameter exponential distribution. Type II censored sampling

(without replacement). Two-parameter exponential distribution. Type II censored sampling (with replacement). Two-parameter exponential distribution. Type I censored sampling without replacement. Multiple type II censoring or missing observations. K -sample procedures. — *The Weibull distribution*: Maximum likelihood procedures: $X \sim WEI(\theta, \beta)$. Inferences based on simple estimators. Multiple sample problems. Three-parameter Weibull distribution. Analysis for the Weibull process. — *The gamma distribution*: Properties of the gamma distribution. Point estimation. Asymptotic results. Inferences on κ . Inferences on θ , κ unknown. — *Extreme-value distributions*: Distributional results. Applications. — *The logistic and other distributions*: Logistic distributions. Cauchy distribution. Normal distribution. Polynomial HF models. Generalized gamma distribution. — *Goodness-of-fit tests*: Probability plots and least squares fitting. Chi-square goodness-of-fit. Cramer-Von Mises test for completely specified H_0 . Likelihood-ratio-type tests.

Warren PAGE. — **Topological uniform structures**. — Pure and applied mathematics, a Wiley-Interscience series of texts, monographs and tracts. — Un vol. relié, 16×24 , de xv, 398 p. — Prix: £24.50. — John Wiley, New York/Chichester/Brisbane/Toronto, 1978.

Uniform spaces: Entourage uniformities. Covering uniformities. Projective and inductive limits. Uniformities and gages. Total boundedness. Completeness. Function spaces. — *Topological groups*: Topological groups are uniformizable. Projective and inductive limits. Open mappings and closed graph theorems. Unitary representations and character groups. Haar measure and integration. — *Topological vector spaces*: TVSps and topological groups. Locally convex TVSps. Projective and inductive limits. Vector-valued measure TVSps. Hahn Banach theorems. Duality theory. Bornological and barrelled spaces. Reflexive and Montel spaces. Full completeness: open mapping and closed graph theorems. — *Topological algebras*: Algebraic preliminaries. Normal and normed*-algebras. TVAs and LMC algebras. Q -algebras. Complete, complex, $LMCT_2$ Q -algebras. — *Abstract harmonic analysis*: The algebra $L_1(G)$. The algebra $M(G)$ and its components. Fourier analysis on LCT_2A groups. — *Appendices*.

J. W. S. CASSELS. — **Rational quadratic forms**. — London mathematical society monographs, vol. 13. — Un vol. relié, 16×24 , de xvi, 413 p. — Prix: £17.50. — Academic Press, London/New York/San Francisco, 1979.

Introduction. — Quadratic forms over a field. — p -adic numbers. — Quadratic forms over local fields. — Tools from the geometry of numbers. — Quadratic forms over the rationals. — Quadratic forms over integral domains. — Integral p -adic forms. — Integral forms over the rational integers. — The spin and orthogonal groups. — Spinor genera. — The reduction of positive definite quadratic forms. — Automorphs of integral forms. — Composition of binary quadratic forms. — Appendix A: Definite forms. — Appendix B: Analytic methods.

K. R. GOODEARL. — **Von Neumann regular rings**. — Monographs and studies in mathematics, vol. 4. — Un vol. relié, 16×24 , de xvii, 369 p. — Prix: £22.50. — Pitman, London/San Francisco/Melbourne, 1979.

Regular rings. — Idempotents and projective modules. — Abelian regular rings. Unit-regular rings. — Direct finiteness. — Rings with primitive factors artinian. — Bounded index of nilpotence. — Comparability. — Regular self-injective rings. — Structure theory for regular self-injective rings. — Relative dimension theory for nonsingular

injective modules. — Infinite dimension theory for nonsingular injective modules. — Continuous regular rings. — $\aleph_0$ -continuous regular rings. — K_0 . — Pseudo-rank functions. — Structure of $\mathbf{P}(R)$. — Existence and uniqueness of pseudo-rank functions. — Completions. — Completions with respect to families of pseudo-rank functions. — Completeness versus self-injectivity. — Appendices.

Hiroki TANABE. — **Equations of evolution.** — Monographs and studies in mathematics, vol. 6. — Un vol. relié, 16×24 , de XII, 260 p. — Prix: £20.00 non-net. — Pitman, London/San Francisco/Melbourne, 1979.

Preliminaries from functional analysis: Banach spaces. Function spaces. Functions with values in a Banach space. — *Dissipative operators and fractional powers of operators:* Dissipative operators. Regularly dissipative operators. Fractional powers of operators. — *Semigroup of linear operators:* Semigroups. Temporally homogeneous equations of evolution. Analytic semigroups. Perturbation of semigroups. Application 1: Initial-value problem of the symmetric hyperbolic system. Application 2: Regularly dissipative operators. Elliptic boundary-value problems. Application 3: Parabolic mixed problems. — *Temporally inhomogeneous equations:* Fundamental solutions of temporally inhomogeneous equations. Admissible subspace with respect to a generator. Stability of a system of generators. Construction of fundamental solutions. Inhomogeneous equations. Application 1: Initial-value problem of the symmetric hyperbolic system. A theorem on fractional powers of positive definite self-adjoint operators. Application 2: Mixed problem of hyperbolic equations. — *Parabolic equations:* Parabolic equations. The case in which the domain of $A(t)$ is independent of t . The case in which the domain of $A(t)$ varies with t . The case in which $A(t)$ is a regularly accretive operator. An alternative proof of a theorem due to J. L. Lions. Behaviours of the solutions as $t \rightarrow \infty$. Regularity of solutions. Supplementary notes. — *Non-linear equations:* Semilinear wave equations. Monotone operators. Various kinds of continuities and pseudomonotone operators. Duality mappings. Existence of solutions of monotone operator equations. Semilinear equations. — *Optimal control:* Formulation of the problem. Distributed observation. Observation of the final state. Time optimal control.

Daniel I. A. COHEN. — **Basic techniques of combinatorial theory.** — Un vol. relié, 17×24 , de x, 297 p. — Prix: £11.30. — John Wiley and Sons, New York/Santa Barbara/Chichester/Brisbane/Toronto, 1978.

Introduction: Counting. One-to-one correspondence. Parity. — *Binomial coefficients:* Permutations and combinations. Identities. Applications. Sampling with replacement. — *Generating functions:* Introduction. Fibonacci numbers. More generating functions. Partitions. More recurrence relationships. — *Advanced counting numbers:* Multinomial coefficients. Stirling numbers. Catalan numbers. — *Two fundamental principles:* The Dirichlet pigeonhole principle. Ramsey's theorem. The principle of inclusion-exclusion. — *Permutations:* Cycles. Parity. Conjugacy classes. Orbits. Polya's theorem (special case). Polya's theorem (general case). — *Graphs:* Paths. Trees. Cayley's formula. The enumeration of graphs. Euler's formula. — *Appendix:* Mathematical induction. (Exercices à la fin de chaque chapitre.)