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Claude DELLACHERIE, Paul-André MEYER. — **Probabilities and potential.** — North Holland mathematics studies, vol. 29. — Un vol. broché, 17×25 , de 189 p. — Prix: Dfl. 65.00. — North Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

Measurable spaces: σ -fields and random variables. Real-valued random variables. — *Probability laws and mathematical expectations*: Summary of integration theory. Supplement on integration. Completion, independence, conditioning. — *Complements to measure theory*: Analytic sets. Capacities. Bounded Radon measures. — *Stochastic processes*: General properties of processes. Regularity of paths. Optional and predictable times. Examples and supplements. — Appendices.

Alain BENSOUSSAN, Jacques-Louis LIONS, George PAPANICOLAOU. — **Asymptotic analysis for periodic structures.** — Studies in mathematics and its applications, vol. 5. — Un vol. relié, 16×23 , de xxiv, 700 p. — Prix: Dfl. 110.00. — North Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

Elliptic operators: Setting of the "model" problem. Asymptotic expansions. Energy proof of the homogenization formula. L^p estimates. Correctors. Second order elliptic operators with non-uniformly oscillating coefficients. Complements on boundary conditions. Reiterated homogenization. Homogenization of elliptic systems. Homogenization of the Stokes equation. Homogenization of equations of Maxwell's type. Homogenization with rapidly oscillating potentials. Study of lower order terms. Singular perturbations and homogenization. Non-local limits. Introduction to non-linear problems. Homogenization of multi-valued operators. — *Evolution operators*: Parabolic operators: asymptotic expansions. Convergence of the homogenization of parabolic equations. Evolution operators of hyperbolic Petrowsky or Schrödinger type. — *Probabilistic problems and methods orientation*: Stochastic differential equations and connections with partial differential equations. Martingale formulation of stochastic differential equations. Some results from ergodic theory. Homogenization with a constant coefficients limit operator. Analytic approach to the problem. Operators with locally periodic coefficients. Reiterated homogenization. Problems with potentials. Homogenization of reflected diffusion processes. Evolution problems. Averaging. — *High frequency wave propagation in periodic structures. Orientation*: Formulation of the problems. The W.K.B. or geometrical optics method. Spectral theory for differential operators with periodic coefficients. Simple applications of the spectral expansion. The general geometrical optics expansion. — *Comments and problems*.

Gustav HERGLOTZ. — **Gesammelte Schriften.** — Herausgegeben im Auftrage der Akademie der Wissenschaften in Göttingen von Hans Schwerdtfeger. — Un vol. relié, 18 × 25, de XL, 652 p. — Prix: DM 128.00. — Vandenhoeck & Ruprecht, Göttingen/Zürich, 1979.

Vorwort von H. Schwerdtfeger. — Biographische Notiz. — Berichte über Einzelgebiete: Relativitätstheorie von P. Bergmann, Geometrie von S. S. Chern, Differentialgleichungen und Potentialtheorie von R. Guenther, Angewandte Mathematik von C. Müller, Zahlentheorie von Th. Schneider, Funktionentheorie von H. Wittich. — Verzeichnis der Abhandlungen von Gustav Herglotz: 38 articles écrits pendant la période 1902-1952.

Abe MIZRAHI, Michael SULLIVAN. — **Finite mathematics with applications for business and social sciences.** — 3rd ed. — Un vol. relié, 18 + 26, de XIV, 638 p. — Prix: £10.50. — John Wiley & Sons, New York/Santa Barbara/Chichester/Brisbane/Toronto, 1979.

Sets. — Numbers and functions. — Linear equations and inequalities. — Introduction to linear programming. — Introduction to matrix algebra with applications. — An algebraic approach to linear programming: the Simplex method. — Counting techniques. — Introduction to probability. — Decision theory. — Matrix applications to directed graphs. — Markov chains. — Applications to games of strategy. — Statistics. — Mathematics of finance. — Logic.

Ching-Lai HWANG, Abu Syed Md. MASUD. — **Multiple objective decision-making: methods and applications (a state-of-the-art survey).** — In collaboration with Sudhakar R. Paidy and Kwangsun Yoon. — Lecture notes in economics and mathematical systems, vol. 164. — Un vol. broché, 17 × 25, de XII, 351 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Introduction. — *Basic concepts and terminology.* — *Methods for multiple objective decision making:* Methods for no articulation of preference information given. Methods for a priori articulation of preference information given. Methods for progressive articulation of preference information given (interactive methods). Methods for a posteriori articulation of preference information given. — *Applications:* Academic planning. Econometrics and development planning. Financial planning. Health care planning. Land use planning for community development. Manpower planning. Media planning. Production planning. Public administration. Systems reliability and maintenance policy. Transportation planning and traffic management. Water resources management. — *Concluding remarks.* — *Bibliography.*

Agustin MARAVALL. — **Identification in dynamic shock-error models.** — Lecture notes in economics and mathematical systems, vol. 165. — Un vol. broché, 17 × 25, de VIII, 158 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

The model and methodology: Introduction. The model. The parameters and the admissible parameter space. Analysis of identification. A remark on estimation. An example: dynamic vs. contemporaneous models. — *White-noise shock; white-noise exogenous*

variables: The case of one exogenous variable. The general case. Some examples and conclusions. — *Autocorrelated shock ; white noise exogenous variables, I*: Moving average process. Autoregressive process. — *Autocorrelated shock ; white-noise exogenous variables, II*: Autoregressive-moving average process. — *Autocorrelated exogenous variables ; white-noise shock*: Some examples. Moving average processes. Autoregressive-moving average processes. Some final remarks. — *Autocorrelated shock : autocorrelated exogenous variables ; the general model*: Autocorrelated shock and autocorrelated exogenous variables. The general model. — *Some extensions of the general model*: Correlation between exogenous variables. Non stationarity. A priori zero restrictions in the coefficients (seasonal models). Autocorrelated errors of measurement. — *Summary*.

Kathleen LEVITZ, Hilbert LEVITZ. — **Logic and Boolean algebra**. — A modern mathematics text for students interested in the humanities and in the social and management sciences. — Un vol. broché, 13 × 20, de VIII, 132 p. — Prix: \$6.95. — Barron's Educational Series, Woodbury, N.Y., 1979.

Introduction. — Sentence composition. — Algebra of logic. — Analysis of inferences. — Switching circuits. — Set theory. — Boolean algebra. — Sample examination. — Answers to exercises and sample examination.

Advances in graph theory. — Edited by B. Bollobas. — *Annals of discrete mathematics*, vol. 3. — Un vol. relié, 18 × 25, de VII, 295 p. — Prix: Dfl. 110.00. — North Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

C. Benzaken & P. L. Hammer: Linear separation of dominating sets in graphs. — *C. Berge*: Regularisable graphs. — *J.-C. Bermond*: Hamiltonian decompositions of graphs, directed graphs and hypergraphs. — *B. Bollobas, P. Erdős, M. Simonovits & E. Szemerédi*: Extremal graphs without large forbidden subgraphs. — *B. Bollobas & A. Hobbs*: Hamiltonian cycles in regular graphs. — *R. A. Brualdi*: The chromatic index of the graph of the assignment polytope. — *J. H. Conway*: Loopy games. — *G. A. Dirac*: Hamilton circuits and long circuits. — *R. Halin*: Simplicial decompositions of infinite graphs. — *M. Hall, Jr.*: Combinatorial completions. — *F. Jaeger & C. Payan*: A class of regularisable graphs. — *H. A. Jung*: On maximal circuits in finite graphs. — *W. Mader*: A reduction method for edge-connectivity in graphs. — *C. St. J. A. Nash-Williams*: Another criterion for marriage in denumerable societies. — *J. Nešetřil & V. Rödl*: Selective graphs and hypergraphs. — *R. Rado*: Monochromatic paths in graphs. — *P. Rosenstiehl & R. C. Read*: On the principal edge tripartition of a graph. — *P. D. Seymour & D. J. A. Welsh*: Percolation probabilities on the square lattice. — *C. A. B. Smith*: On Tutte's dichromate polynomial. — *A. G. Thomason*: Hamiltonian cycles and uniquely edge colourable graphs. — *C. Thomassen*: Hamiltonian paths in squares of infinite locally finite blocks. — *B. Toft*: An investigation of colour-critical graphs with complements of low connectivity. — *W. J. Tutte*: The subgraph problem.

Raymond CUNINGHAME-GREEN. — **Minimax algebra**. — Lecture notes in economics and mathematical systems, vol. 166. — Un vol. broché, 17 × 25, de XI, 258 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Motivation. — The initial axioms. — Opening and closing. — The principal interpretation. — The spaces E_n and $\mathcal{M}_{mn}$. — Duality for matrices. — Conjugacy. — AA^*

relations. — Some schedule algebra. — Residuation and representation. — Trisections. — σ -astic matrices. — / -existence. — The equation $A \otimes x = b$ over a blog. — Linear equations over a linear blog. — Linear dependence. — Rank of matrices. — Seminorms on E_n . — Some matrix spaces. — The zero-lateness problem. — Projections. — Definite and metric matrices. — Fundamental eigenvectors. — Aspects of the eigenproblem. — Solving the eigenproblem. — Spectral inequalities. — The orbit. — Standard matrices. — References and notations.

Vic BARNETT, Toby LEWIS. — **Outliers in statistical data.** — Wiley series in probability and mathematical statistics. — Un vol. relié, 16×24 , de xi, 365 p. — Prix: £17.50. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1978.

Introduction: Human error and ignorance. Outliers in relation to probability models. Outliers in more structured situations. Bayesian and non-parametric methods. Survey of outlier problems. — *What should one do about outlying observations?*: Early informal approaches. Various aims. Models for discordancy. Test statistics. Statistical principles underlying tests of discordancy. Accomodation of outliers: robust estimation and testing. — *Discordancy tests for outliers in univariate samples*: Statistical bases for construction of tests. Performance criteria of tests. The multiple outlier problem. Discordancy tests for practical use. — *Accomodation of outliers in univariate samples: robust estimation and testing*: Performance criteria. General methods of accomodation. Accomodation of outliers in univariate normal samples. Accomodation of outliers in exponential samples. — *Outlying sub-samples: slippage tests*: Non-parametric slippage tests. The slippage model. Parametric slippage tests. Other slippage work. — *Outliers in multivariate data*: Outliers in multivariate normal samples. Informal detection of multivariate outliers. Accomodation of multivariate outliers. — *Outliers in designed experiments, regression and in time-series*: Outliers in designed experiments. Outliers in regression. Outliers with general linear models. Outliers in time-series. — *Bayesian and non-parametric approaches*: Bayesian methods. Non-parametric methods. — *Perspective*. — *Appendix*: Statistical tables

Graham J. UPTON. — **The analysis of cross-tabulated data.** — Wiley series in probability and mathematical statistics. — Un vol. relié, 16×24 , de xii, 148 p. — Prix: £10.75. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1978.

Some statistical preliminaries. — Association and independence in 2×2 tables. — Association and independence in $I \times J$ tables. — Association and independence in multidimensional tables. — Log-linear models for 2×2 tables. — The saturated model for a multiway table. — Unsaturated models for a multiway table. — Further techniques for the analysis of multiway tables. — Polytomous variables and incomplete tables. — Symmetry, panel data, and models of change. — Appendixes.

Arthur LINDER, Willi BERCHTOLD. — **Elementare statistische Methoden.** — Uni-Taschenbücher: Statistik, vol. 796. — Un vol. broché, 12×19 , de 248 p. — Prix: DM 18.80. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1979.

Häufigkeitsverteilung, Lage- und Streuungsmasse: Häufigkeitsverteilung. Lage- und Streuungsmasse. Durchschnitt und Streuung. — *Schätz- und Prüfverfahren*: Stichprobe und Grundgesamtheit. Schätzen von Parametern. Prüfen von Hypothesen. Vertrauens-

grenzen. — *Beurteilen von Anzahlen*: Binomialverteilung. Poissonverteilung. Negative Binomialverteilung. — *Das Chiquadrat-Prüfverfahren*: Prüfen von Anzahlen auf gegebene Verhältnisse. Unterschied zwischen beobachteter und theoretischer Verteilung. Unabhängigkeit bei qualitativen Merkmalen. Unabhängigkeit in der Vierfeldertafel. Weitere Anwendungen von χ^2 . — *Beurteilen von Durchschnitten und Streuungen*: Normalverteilung. Prüfen von Durchschnitten. Prüfen von Streuungen. Vergleich mehrerer Durchschnitte. — *Regression und Korrelation*: Allgemeines. Einfache lineare Regression. Korrelation. — *Theoretische Grundlagen*: Allgemeines über Wahrscheinlichkeiten und Verteilungen. Einige Wahrscheinlichkeitsverteilungen. Prüfverteilungen. Grundlagen für die Prüfverfahren. Statistische Prüfverfahren. Unterschied zwischen beobachteten und theoretischen Häufigkeiten. Maximum Likelihood Schätzungen. — *Tafeln*. — *Verzeichnis der Beispiele*.

R. GEEL. — *Singular perturbations of hyperbolic type*. — Mathematical centre tracts, vol. 98. — Un vol. broché, 16 × 24, de xxii, 184 p. — Prix: Dfl. 23.00. — Mathematisch centrum, Amsterdam, 1978.

Initial value problems for linear ordinary differential equations. — Initial value problems for nonlinear ordinary differential equations. — Initial value problems for linear hyperbolic differential equations. — Initial value problems for nonlinear hyperbolic differential equations. — Initial boundary value problems for linear hyperbolic differential equations. — Characteristic boundary value problems for linear hyperbolic differential equations.

S. G. VAN DER MEULEN, M. VELDHORST. — *TORRIX: a programming system for operations on vectors and matrices over arbitrary fields and of variable size*, vol. 1. — Mathematical centre tracts, vol. 86. — Un vol. broché, 16 × 24, de vi, 231 p. — Prix: Dfl. 28.00. — Mathematisch centrum, Amsterdam, 1978.

Mathematical foundations. — Language and implementation. — Users' guide. — Organizational matters. — TORRIX basis. — Basis: routinetexts.

D. M. R. LEIVANT. — *Absoluteness of intuitionistic logic*. — Mathematical centre tracts, vol. 73. — Mathematical centre tracts, vol. 73. — Un vol. broché, 16 × 24, de ix, 137 p. — Prix: Dfl. 17.00. — Mathematisch centrum, Amsterdam, 1979.

Preface. — Introduction. — Technical notes to the introduction. — Preliminaries. — Regular theories and normalization. — Absoluteness theorems.

K. VAN HARN. — *Classifying infinitely divisible distributions by functional equations*. — Mathematical centre tracts, vol. 103. — Un vol. broché, 16 × 24, de vii, 194 p. — Prix: Dfl. 24.00. — Mathematisch centrum, Amsterdam, 1978.

Introduction and preliminaries. — Classification of the infinitely divisible lattice distributions. — Decompositions of lattice distributions. — The classes C_∞ in relation to renewal theory. — Classification of the infinitely divisible distributions on $[0, \infty]$.

Proceedings bicentennial congress Wiskundig Genootschap, part. 1 — Ed. by P. C. Baayen, D. Van Dulst, J. Oosterhoff. — Mathematical centre tracts, vol. 100. — Un vol. broché, 16 × 24, de xiv, 212 p. — Prix: Dfl. 26.00. — Mathematisch centrum, Amsterdam, 1979.

Presidential address: H. Freudenthal. — *Brouwer memorial lecture*: A. Borel, W. T. van Est. — *Plenary addresses*: J. J. Duistermaat, N. H. Kuiper, J. J. Seidel, B. L. van der Waerden. — *Invited lectures*: B. L. J. Braaksma, J. S. Cramer, D. van Dalen, J. Diller, E. W. Dijkstra, J. Hemelrijk, D. G. Higman.

Proceedings bicentennial congress Wiskundig genootschap, part 2. — Ed. by P. C. Baayen, D. Van Dulst, J. Oosterhoff. — Mathematical centre tracts, vol. 101. — Un vol. broché, 16 × 24, de p. 213 à 428. — Prix: Dfl. 26.00. — Mathematisch centrum, Amsterdam, 1979.

14 exposés par: A. Hordijk, M. A. Kaashoek, H. W. Lenstra, Jr., E. J. N. Looijenga, E. Neuenschwander, L. A. Peletier, J. Th. Runnenburg, A. van der Sluis, M. N. Spijker, W. P. van Stigt, F. Takens, E. Thomas, R. Tijdeman, A. van Wijngaarden.

Serge LANG. — **Algebraische Strukturen.** — Aus dem Amerikanischen übersetzt von Benno Artmann. — Moderne Mathematik in elementarer Darstellung, vol. 18. — Un vol. broché, 16 × 23, de 194 p. — Prix: DM 19.80. — Vandenhoeck & Ruprecht, Göttingen, 1979.

Die ganzen Zahlen. — Gruppen. — Ringe. — Polynome. — Körpertheorie. — Endliche Körper. — Lineare Gruppen.

Klaus GLASHOFF, Sven-Åke GUSTAFSON. — **Einführung in die lineare Optimierung.** — Die Mathematik. — Un vol. broché, 14 × 22, de 204 p. — Prix: DM 22.00. — Wissenschaftliche Buchgesellschaft, Darmstadt, 1978.

Einführung und Grundlagen: Optimierungsaufgaben. Mathematische Grundbegriffe. Lineare Optimierungsaufgaben. — *Schwache Dualität*: Dualitätslemma und Dualproblem. Gleichmässige Approximation. Zustandsdiagramm und Dualitätslücken. — *Dualitätstheorie*: Geometrie des Dualproblems. Lösbarkeit des Dualproblems. Trennungssatz und Dualität. Stützhyperebenen und Dualität. Ergänzungen zur Dualitätstheorie. — *Numerische Methoden*: Basislösungen und Austausch-Schritt. Simplexverfahren und Diskretisierung. Numerische Realisierung der Simplex-Methode. Berechnung einer Ausgangsbasis. Das nichtlineare Gleichungssystem.

Felix KLEIN. — **Vorlesungen über die Entwicklung der Mathematik im 19. Jahrhundert. Teil 1.** — Für den Druck bearbeitet von R. Courant und O. Neugebauer. — Reprint of the 1926-1927 ed. — Un vol. broché, 16 × 23, de xiii, 385 p., x, 208 p. (2 vol. en un). — Prix: DM 36.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Gauss: Allgemeines. Angewandte Mathematik. Reine Mathematik. — *Frankreich und die Ecole polytechnique in der ersten Jahrzehnten des 19. Jahrhunderts*: Mechanik und

mathematische Physik. Geometrie. Analysis und Algebra. — *Gründung des Crelleschen Journals und das Aufblühen der reinen Mathematik in Deutschland*: Analytiker des Crelleschen Journals. Geometer des Crelleschen Journals. — *Die Entwicklung der algebraischen Geometrie über Moebius, Plücker und Steiner hinaus*: Herausarbeitung einer rein projektiven Geometrie. Die parallellaufende Entwicklung der Algebra; die Invariantentheorie. Der Raum von n Dimensionen und die allgemeinen komplexen Zahlen. — *Mechanik und mathematische Physik in Deutschland und England bis etwa 1880*: Mechanik. Mathematische Physik. — *Die allgemeine Funktionentheorie komplexer Veränderlicher bei Riemann und Weierstrass*: Bernhard Riemann. Karl Weierstrass. — *Vertiefte Einsicht in das Wesen der algebraischen Gebilde*: Weiterführung der algebraischen Geometrie. Von den algebraischen Zahlen und dem Parallelismus ihrer Theorie mit derjenigen der algebraischen Funktionen. — *Gruppentheorie und Funktionentheorie, insbesondere automorphe Funktionen*: Gruppentheorie. Automorphe Funktionen.

Robert D. RICHTMYER. — **Principles of advanced mathematical physics, vol. 1.** — Texts and monographs in physics. — Un vol. relié, 17×24 , de xv, 422 p. — Prix: DM 44.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Preface. — Hilbert spaces. — Distributions; general properties. — Local properties of distributions. — Tempered distributions and Fourier transforms. — L^2 spaces. — Some problems connected with the Laplacian. — Linear operators in a Hilbert space. — Spectrum and resolvent. — Spectral decomposition of self-adjoint and unitary operators. — Ordinary differential operators. — Some partial differential operators of quantum mechanics. — Compact, Hilbert-Schmidt, and trace-class operators. — Probability; measure. — Probability and operators in quantum mechanics. — Problems of evolution; Banach spaces. — Well-posed initial-value problems; semigroups. — Nonlinear problems; fluid dynamics.

A. D. IOFFE, V. M. TIHOMIROV. — **Theory of extremal problems.** — Studies in mathematics and its applications, vol. 6. — Un vol. relié, 16×23 , de xii, 460 p. — Prix: Dfl. 160.00. — North-Holland publishing company, Amsterdam/New York/Oxford, 1979.

Background material. — Necessary conditions for an extremum. — Necessary conditions for an extremum in the classical problems of the calculus of variations and optimal control. — Elements of convex analysis. — Local convex analysis. — Locally convex problems and the maximum principle for problems with phase constraints. — Special problems. — Sufficient conditions for an extremum. — Measurable mappings and convex analysis of integral functionals. — Existence of solutions in problems of the calculus of variations and optimal control. — Application of the theory to specific problems.

Lindsay CHILDS. — **A concrete introduction to higher algebra.** — Undergraduate texts in mathematics. — Un vol. relié, 17×24 , de xiv, 338 p. — Prix: DM 33.00. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

Integers: Numbers. Induction: the binomial theorem. Unique factorization into products of primes. Primes. Bases. Congruences. Congruence classes. Rings and fields. Matrices and vectors. Secret codes, I. Fermat's theorem, I: Abelian groups. Repeating

decimals, I. Error correcting codes, I. The Chinese remainder theorem. Secret codes, II. — *Polynomials*: Polynomials. Unique factorization. The fundamental theorem of algebra. Irreducible polynomials in $\mathbf{R}[x]$. Partial fractions. The derivative of a polynomial. Sturm's algorithm. Factoring in $\mathbf{Q}[x]$, I. Congruences modulo a polynomial. Fermat's theorem, II. Factoring in $\mathbf{Q}[x]$, II: Lagrange interpolation. Factoring in $\mathbf{Z}_p[x]$. Factoring in $\mathbf{Q}[x]$, III: Mod m . — *Fields*: Primitive elements. Repeating decimals, II. Testing for primeness. Fourth roots of one in $\mathbf{Z}_p$. Telephone cable splicing. Factoring in $\mathbf{Q}[x]$, IV: Bad examples Mod p . Congruence classes modulo a polynomial: simple field extensions. Polynomials and roots. Error correcting codes, II. Isomorphisms, I. Finite fields are simple. Latin squares. Irreducible polynomials in $\mathbf{Z}_p[x]$. Finite fields. The discriminant and Stickelberger's theorem. Quadratic residues. Duplicate bridge tournaments. Algebraic number fields. Isomorphisms, II. Sums of two squares. On unique factorization.

George W. WHITEHEAD. — *Elements of homotopy theory*. — Graduate texts in mathematics, vol. 61. — Un vol. relié, 17×24 , de XXIII, 744 p. — Prix: DM 69.00. — Springer Verlag, New York/Heidelberg/Berlin, 1978.

Introductory notions: The fundamental problems: extension, homotopy, and classification. Standard notations and conventions. Maps of the n -sphere into itself. Compactly generated spaces. NDR-pairs. Filtered spaces. Fibrations. — *CW-complexes*: Construction of CW-complexes. Homology theory of CW-complexes. Compression theorems. Cellular maps. Local calculations. Regular cell complexes. Products and the cohomology ring. — *Generalities on homotopy classes of mappings*: Homotopy and the fundamental group. Spaces with base points. Groups of homotopy classes. H -spaces. H' -spaces. Exact sequences of mapping functors. Homology properties of H -spaces and H' -spaces. Hopf algebras. — *Homotopy groups*: Relative homotopy groups. The homotopy sequence. The operations of the fundamental group on the homotopy sequence. The Hurewicz map. The Eilenberg and Blakers homology groups. The homotopy addition theorem. The Hurewicz theorems. Homotopy relations in fibre spaces. Fibrations in which the base or fibre is a sphere. Elementary homotopy theory of Lie groups and their coset spaces. — *Homotopy theory of CW-complexes*: The effect on the homotopy groups of a cellular extension. Spaces with prescribed homotopy groups. Weak homotopy equivalence and CW-approximation. Aspherical spaces. Obstruction theory. Homotopy extension and classification theorems. Eilenberg-MacLane spaces. Cohomology operations. — *Homology with local coefficients*: Bundles of groups. Homology with local coefficients. Computations and examples. Local coefficients in CW-complexes. Obstruction theory in fibre spaces. The primary obstruction to a lifting. Characteristic classes of vector bundles. — *Homology of fibre spaces: elementary theory*: Fibrations over a suspension. The James reduced products. Further properties of the Wang sequence. Homology of the classical groups. Fibrations having a sphere as fibre. The homology sequence of a fibration. The Blakers-Massey homotopy excision theorem. — *The homology suspension*: The homology suspension. Proof of the suspension theorem. Applications. Cohomology operations. Stable operations. The mod 2 Steenrod algebra. The Cartan product formula. Some relations among the Steenrod squares. The action of the Steenrod algebra on the cohomology of some compact Lie groups. — *Postnikov systems*: Connective fibrations. The Postnikov invariants of a space. Amplifying a space by a cohomology class. Reconstruction of a space from its Postnikov system. Some examples. Relative Postnikov systems. Postnikov systems and obstruction theory. — *On mappings into group-like spaces*: The category of a space. H_0 -spaces. Nilpotency of $[X, G]$. The case $X = X_1 \times \dots \times X_k$. The Samelson product. Commutators and homology. The Whitehead product. Operations

in homotopy groups. — *Homotopy operations* : Homotopy operations. The Hopf invariant. The functional cup product. The Hopf construction. Geometrical interpretation of the Hopf invariant. The Hilton-Milnor theorem. Proof of the Hilton-Milnor theorem. The Hopf-Hilton invariants. — *Stable homotopy and homology* : Homotopy properties of the James imbedding. Suspension and Whitehead products. The suspension category. Group extensions and homology. Stable homotopy as a homology theory. Comparison with the Eilenberg-Steenrod axioms. Cohomology theories. — *Homology of fibre spaces* : The homology of a filtered space. Exact couples. The exact couples of a filtered space. The spectral sequence of a fibration. Proofs of theorems (4.7) and (4.8). The Atiyah-Hirzebruch spectral sequence. The Leray-Serre spectral sequence. Multiplicative properties of the Leray-Serre spectral sequence. Further applications of the Leray-Serre spectral sequence. — *Appendices*.

Measure theory applications to stochastic analysis. — Proceedings, Oberwolfach conference, Germany, July 3-9, 1977. — Ed. by G. Kallianpur and D. Kölzow. — *Lectures notes in mathematics*, vol. 695. — Un vol. broché, 17 × 24, de xii, 261 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Martingales, stochastic integrals : 3 exposés par N. El Karoui, M. Métivier, M. Yor. — *Stochastic filtering and control* : 6 exposés par: R. S. Bucy, M. H. A. Davis, T. E. Duncan, F. Graef, G. Ruckebusch. — *Stochastic equations* : 4 exposés par A.V. Balakrishnan, V. E. Beneš, A. Bose & D. Dawson, K. Sato. — *Gaussian processes* : 2 exposés par M. Hitsuda, H. Oodaira. — *Homogeneous chaos and multiple Wiener integrals* : 3 exposés par T. Hida, S. T. Huang & S. Cambanis, W. Słowiński. — *Operator valued measures and infinite dimensional processes* : 2 exposés par W. Hackenbroch, V. Mandrekar. — *Stability* : 2 exposés par L. Arnold & V. Wihstutz, W. Wedig. — *Miscellanea* : 3 exposés par M. Gatteringer, D. Maharam, F. Oesterreicher.

Topics in algebra. — Proceedings, 18th summer research institute of the Australian mathematical society, Australian national university, Canberra, January 9-February 17, 1978. — Ed. by M. F. Newman. — *Lecture notes in mathematics*, vol. 697. — Un vol. broché, 17 × 24, de xi, 229 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

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Module theory. — Papers and problems from the special session sponsored by the American mathematical society at the University of Washington, Proceedings, Seattle, August 15-18, 1977. — Ed. by Carl Faith and Sylvia Wiegand. — Lecture notes in mathematics, vol. 700. — Un vol. broché, 17×24 , de X, 239 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Computing methods in applied sciences and engineering, 1977, I. — Third international symposium, December 5-9, 1977, IRIA LABORIA, Institut de recherche d'informatique et d'automatique. — Ed. by R. Glowinski and J. L. Lions. — Lecture notes in mathematics, vol. 704. — Un vol. broché, 17 × 25, de vi, 391 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Packing and covering in combinatorics. — Ed. by A. Schrijver. — Mathematical centre tracts, vol. 106. — Un vol. broché, 16×24 , de 313 p. — Prix: Dfl. 38.00. — Mathematisch centrum, Amsterdam, 1979.

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Probability in Banach spaces II. — Proceedings of the 2nd international conference on probability in Banach spaces, 18-24 June 1978, Oberwolfach, Germany. — Ed. by A. Beck. — Lecture notes in mathematics, vol. 709. — Un vol. broché, 17×25 , de v, 205 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Mark Kac: probability, number theory, and statistical physics — selected papers. — Edited by K. Baclawski and M. D. Donsker. — *Mathematicians of our time series.* — Un vol. relié, 18 × 26, de xxxviii, 529 p. — Prix: £24.50. — The MIT press, Cambridge, Mass./London, 1979.

Autobiographical note. — Introduction. — Acknowledgments. — Bibliography of Mark Kac. — Commentary. — Reprints of 52 papers written by Mark Kac, some in collaboration with others, such as: H. Steinhaus, E. R. van Kampen, P. Erdős, A. Wintner, R. P. Agnew, H. Hurwitz Jr., R. P. Boas, Jr., A. J. F. Siegert, H. Pollard, M. Donsker, T. H. Berlin, J. C. Ward, D. A. Darling, G. E. Uhlenbeck, P. C. Hemmer, K. M. Case, P. van Moerbeke).

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Notes d'un cours d'introduction sur la théorie des nombres donnés par A. Weil à l'Université de Chicago pendant le semestre d'été 1949.

Equations différentielles et systèmes de Pfaff dans le champ complexe. — Edité par R. Gérard et J.-P. Ramis. — Lecture notes in mathematics, vol. 712. — Un vol. broché, 17 × 25, de v, 364 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Computing methods in applied sciences and engineering, 1977, II. — 3rd international symposium, December 5-9, 1977, IRIA LABORIA (Institut de recherche d'informatique et d'automatique). — Ed. by R. Glowinski and J. L. Lions. — Lecture notes in physics, vol. 91. — Un vol. broché, 17 × 25, de vi, 359 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Séminaire de théorie du potentiel, Paris, n° 4 — Directeurs: M. Brelot, G. Choquet, J. Deny. — Rédacteurs: F. Hirsch et G. Mokobodzki. — Lecture notes in mathematics, vol. 713. — Un vol. broché, 17 × 25, de vii, 281 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg, New York, 1979.

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Categorical topology: proceedings of the international conference, Berlin, August 27th to September 2nd, 1978. — Ed. by H. Herrlich and G. Preuss. — Lecture notes in mathematics, vol. 719. — Un vol. broché, 17×25 , de xii, 420 p. — Prix: DM 39.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Séminaire de probabilités XIII, Université de Strasbourg, 1977/78. — Edité par C. Dellacherie, P. A. Meyer et M. Weil. — Lecture notes in mathematics, vol. 721. — Un vol. broché, 17×25 , de vii, 647 p. — Prix: DM 56.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

5 exposés du colloque « *Variables aléatoires en dimension infinie* » par C. Borell — S. D. Chatterji — E. Giné — J. T. Lapresté — M. B. Marcus, G. Pisier. — *Martingales, intégrales stochastiques*: 32 exposés par J. Azéma, M. Yor — M. Emery, C. Stricker — Ch. Yoeurp — M. Pratelli — R. Sidibé — R. Rebolledo — J. Mémin, A. N. Shiriyayev — R. Cairoli — R. Cairoli, J. P. Gabriel — P. A. Meyer — C. Doléans-Dade, P. A. Meyer — G. Letta — M. Bruneau — C. Stricker — P. A. Meyer — C. S. Chou — J. Spiliotis — M. Emery — A. Bonami, D. Lepingle — M. Izumisawa, T. Sekiguchi — C. Doleans-Dade, P. A. Meyer — T. Jeulin et M. Yor — C. Dellacherie — J. Szpirglas, G. Maziotto — Y. Le Jan — M. Yor — C. S. Chou. — *Sur le balayage*: 5 exposés par N. El Karoui — M. Yor — C. Stricker — P. A. Meyer et al — *Processus de Markov, etc.*: 7 exposés par D. Williams — J. M. Bismut — T. Jeulin — Ph. Nanopoulos — M. Fujisaki — R. Carmona. — *Exposés supplémentaires*: 11 exposés par T. Jeulin — C. Stricker — P. A. Meyer — Ch. Yoeurp — M. Yor — J. Azema et M. Yor — N. El Karoui — B. Maisonneuve — M. Barlow — J. Bretagnolle, C. Huber.

Topology of low-dimensional manifolds. — Proceedings of the 2d Sussex conference, 1977. — Edited by Roger Fenn. — Lecture notes in mathematics, vol. 722. — Un vol. broché, 17×22 , de vi, 154 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Representations of locally compact groups with applications: Part 1. — Ed. by T. H. Koornwinder. — *MC syllabus*, vol. 38.1. — Un vol. broché, 16 × 24, de iv, 219 p. — Prix: Dfl. 27.00. — Mathematisch Centrum, Amsterdam, 1979.

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Das Weylsche Kriterium: Der Dirichletsche Approximationssatz. Definition und Kriterien der Gleichverteilung. Der Kroneckersche Approximationssatz. — *Der Satz von Féjer:* Einfache Eigenschaften gleichverteilter Folgen. Der Umordnungssatz von J. von Neumann. Der Satz von Féjer. — *Der Satz von Van der Corput:* Die Fundamentalungleichung. Der Hauptsatz. Temperierte Funktionen. — *Gleichverteilung in kompakten Räumen:* Gleichverteilung in Restklassengruppen. Gleichverteilung in kompakten Räumen. Allgemeine Summierungsverfahren. — *Der Raum aller Folgen:* Es gibt sehr viele gleichverteilte Folgen. Es gibt sehr wenige gleichverteilte Folgen. Normale Zahlen. — *GleichmäÙig gleichverteilte Folgen:* Definition, Beispiele und Gegenbeispiele. Der Hauptsatz. Der Raum aller gleichmäÙig gleichverteilten Folgen. — *Diskrepanz:* Definition und einfache Eigenschaften. Diskrepanzen spezieller Folgen. Die Ungleichung von Erdös und Turan. — *Numerische Integration:* Die Ungleichung von Kosma und ihre Verallgemeinerung. Anwendungen in der numerischen Mathematik. Praktische Gitterpunkte. — *Anwendungen in Analysis und Zahlentheorie:* Die Nullstellen der Zetafunktion sind gleichverteilt. Gleichverteilung und Riemannintegrierbarkeit. Pythagoräische Tripel.

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Joram LINDENSTRAUSS, Lior TZAFRIRI. — **Classical Banach spaces II: function spaces.** — Ergebnisse der Mathematik und ihrer Grenzgebiete, Band 97. — Un vol. relié, 17×25 , de x, 243 p. — Prix: DM 78.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Banach lattices: Basic definitions and results. Concrete representation of Banach lattices. The structure of Banach lattices and their subspaces. p -convexity in Banach lattices. Uniform convexity in general Banach spaces and related notions. Uniform convexity in Banach lattices and related notions. The approximation property and Banach lattices. — *Rearrangement invariant function spaces*: Basic definitions, examples and results. The Boyd indices. The Haar and the trigonometric systems. Some results on complemented subspaces. Isomorphisms between r.i. function spaces; uniqueness of the r.i. structure. Applications of the Poisson process to r.i. function spaces. Interpolation spaces and their applications.

ODA, Tadao. — **Lectures on torus embeddings and applications.** — Based on joint work with Katsuya Miyake. — Tata institute of fundamental research lectures on mathematics and physics, vol. 57. — Un vol. broché, $17,5 \times 24,5$ de xi, 175 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

Torus embeddings: Algebraic tori. Torus embeddings and Sumihiro's theorem. Rational partial polyhedral decompositions. First main theorems. The proof of theorems

in §.4. Projective torus embeddings. Examples of torus embeddings and morphisms. Torus embeddings of dimension ≤ 2 . Complete non-singular torus embeddings in dimension 3. — *Applications*: Manifolds with corners associated to torus embeddings. Complex tori. Compact complex surfaces of class VII. Hopf surfaces and their degeneration. Inoue's examples of class VII₀ surfaces with $b_2 = 1$. Hilbert modular surfaces and class VII₀ surfaces.

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Henri Cartan: **Oeuvres.** — Collected works. — Edited by Reinhold Remmert and Jean-Pierre Serre. — 3 volumes reliés, 17,5 × 24,5 de xxxxi, 1469 p. — Prix: DM 240.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Differential calculus in normed linear spaces : Gateaux derivatives. Taylor's formula. Convexity and Gateaux differentiability. Gateaux differentiability and weak lower semi-continuity. Commutation of derivations. Fréchet derivatives. Model problem. — *Minimization of functionals-theory* : Minimization without convexity conditions. Minimization with convexity conditions. Applications to the model problem and reduction to variational inequality. Some functional spaces. Examples. — *Minimization without constraints-algorithms* : Method of descent. Generalized Newton's method. Other methods. — *Minimization with constraints-algorithms* : Linearization method. Centre method. Method of gradient with projection. Minimization in a product space. — *Duality and its applications* : Preliminaries. Recollection of Hahn-Banach and Ky Fan and Sion theorem, Lagrangian and Lagrange multipliers, primal and dual problems. Duality in finite dimensional spaces via Hahn-Banach theorem. Duality in infinite dimensional spaces via Ky Fan and Sion theorem. Minimization of non-differentiable functionals using duality, examples and algorithm. — *Elements of theory of optimal control and elements of optimal design* : Optimal control theory. Theory of optimal design.

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Approximate solution of random equations. — Ed. by A. T. Bharucha-Reid. — North-Holland series in probability and applied mathematics. — Un vol. relié, $16,5 \times 23,5$, de IX, 242 p. — Prix: \$39.50. — Elsevier North-Holland, New York/Oxford, 1979.

George A. Bécus : Successive approximations solution of a class of random equations. — *W. E. Boyce* : Applications of the Liouville equation. — *P. S. Chandrasekharan and A. T. Bharucha-Reid* : Approximate solution of fixed point equations for random operators. — *P.-L. Chow* : Approximate solution of random evolution equations. — *Stuart Geman* : A method of averaging for random differential equations with applications to stability and stochastic approximations. — *R. Kannan* : Stochastic approximation and nonlinear operator equations. — *Harold J. Kushner* : Approximation methods for the minimum average cost per unit time problem with a diffusion model. — *Melvin D. Lax* : Obtaining approximate solutions of random differential equations by means of the method of moments. — *M. Z. Nashed and H. W. Engl* : Random generalized inverses and approximate solutions of random operator equations. — *W. J. Padgett* : Approximate solution of random nonlinear equations by random contractors. — *Tze-Chien-Sun* : A finite element method for random differential equations.

Trends in applications of pure mathematics to mechanics, volume II. — A collection of papers presented at a symposium at Kozubnik, Poland, in September 1977. — Ed. by Henryk Zorski. — Monographs and studies in mathematics, vol. 5. — Un vol. relié, $16,5 \times 24$, de VIII, 341 p. — Prix: £26.00. — Pitman, London/San Francisco/Melbourne, 1979.

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R. W. CARROLL. — **Transmutation and operator differential equations.** — North-Holland mathematics studies, vol. 37. — Notas de matematica, vol. 67. — Un vol. broché, $16,5 \times 24$, de IX, 245 p. — Prix: \$34.25. — North-Holland publishing company, Amsterdam/New York/Oxford, 1979.

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Representations of locally compact groups with applications, part II. — Ed. by T. H. Koornwinder. — *MC syllabus*, vol. 38.2. — Un vol. broché, 16×24 , de 276 p. — Prix: Dfl. 34.00. — Mathematisch Centrum, Amsterdam, 1979.

H. A. Van der Meer : Induced representations of finite groups. — *T. H. Koornwinder* : General representation theory. — *T. H. Koornwinder* : Representations of locally compact abelian groups. *T. H. Koornwinder and H. A. Van der Meer* : Induced representations of locally compact groups. — *H. A. Van der Meer* : Representations of semi-direct products — *G. J. Heckman* : Compact Lie groups and their representations. — *G. Van Dijk* : The irreducible unitary representations of $SL(2, \mathbb{R})$. — *H. A. Van der Meer* : Infinite imprimitivity and localizability in quantum mechanics.

Studies in probability theory. — Ed. by Murray Rosenblatt. — *Studies in mathematics*, vol. 18. — Un vol. relié, $14 \times 20,5$, de xi, 268 p. — Prix: £8.80. — The mathematical association of America, Washington, D. C. (Distr. en Europe par John Wiley & Sons Ltd, Chichester), 1978.

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Proceedings of the international symposium on stochastic differential equations, Kyoto, 1976. — Ed. by Kiyosi Itô. — A Wiley-interscience publication. — Un vol. relié, 17 × 24, de xxx, 507 p. — Prix: £21.00. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1978.

K. Itô and S. Watanabe : Introduction to stochastic differential equations: Stochastic integrals. Stochastic differentials. Stochastic differential equations. Several topics related to stochastic differential equations. — 27 *exposés par* : A.V. Balakrishnan. A. Bensoussan, J. L. Lions et G. Papanicolaou. M. D. Donsker et S. R. S. Varadhan. Avner Friedman. Masuyuki Hitsuda et Hisao Watanabe. Nobuyuki Ikeda et Shinzo Watanabe. Kiyosi Itô. Yu. Kabanov, R. Liptser et A. Shiryaev. G. Kallianpur. Norihiko Kazamaki. Shin-ichi Kotani. Hiroshi Kunita. Hui-Hsiung Kuo. Paul Malliavin. Minoru Motoo. Shintaro Nakao et Yuiti Yamato. Makiko Nisio. Shigeyoshi Ogawa. Sigeru Omatu et Takasi Soeda. Ken-iti Sato. Akinobu Shimizu. Yoshifumi Sunahara, Shin'ichi Aihara, Muneshi Koyama et Fumio Kojima. Hiroshi Tanaka. Masaaki Tsuchiya. Shinzo Watanabe. Keigo Yamada. M. P. Yershov.

Arpad SZABO. — **The beginnings of Greek mathematics.** — Synthese historical library, vol. 17. — Un vol. relié, 16 × 23, de 358 p. — Prix: Dfl. 100.000. — D. Reidel publishing company, Dordrecht/Boston (publié en co-édition avec Akadémiai Kiado, Budapest), 1978.

The early history of the theory of irrationals : Current views of the theory's development. The concept of *dynamis*. The mathematical part of the *Theaetetus*. The usage and chronology of *dynamis*. *Tetragonismos*. The mean proportional. The mathematics lecture delivered by Theodorus. The mathematical discoveries of Plato's *Theaetetus*. The "independence" of *Theaetetus*. A glance at some rival theories. The so-called "Theaetetus problem". The discovery of incommensurability. The problem of doubling the square. Doubling the square and the mean proportional. — *The pre-Euclidean theory of proportions* : Introduction. A survey of the most important terms. Consonances and intervals. The *diastema* between two numbers. A digression on the theory of music. End points and intervals pictured as "straight lines". *Diplasion*, *hemiolion* and *epitriton*. The Euclidean algorithm. The canon. Arithmetical operations on the canon. The technical term for "ratio" in geometry. $\alpha\upsilon\alpha$ λογία as "geometric proportion". $\alpha\nu\acute{\alpha}$ λογον. The preposition $\alpha\nu\acute{\alpha}$. The elliptic expression $\alpha\nu\acute{\alpha}$ λόγον. The subsequent history of $\alpha\nu\acute{\alpha}$ λογου as a mathematical term. Cuts of the canon and musical means. The creation of the mathematical concept of λόγος. A digression on the history of the word λόγος. The application of the theory of proportion to arithmetic and geometry. The mean proportional in music, arithmetic and geometry. The construction of the mean proportional. Conclusion. — *The construction of mathematics within a deductive framework* : "Proof" in Greek mathematics. The proof of incommensurability. The origin of anti-empiricism and indirect proof. Euclid's foundations. Aristotle and the foundations of mathematics. *Hypotheseis*. The "assumptions" in dialectic. How *hypotheseis* were used. *Hypotheseis* and the method of indirect proof. A question of priority. Zeno, the inventor of dialectic. Plato and the Eleatics. *Hypotheseis* and the foundations of mathematics. The definition of "unit". Arithmetic and the teaching of the Eleatics. The divisibility of numbers. The problem of the *aitemata*. Euclid's postulates. The constructions of *Ænopides*. The first three postulates in the "Elements". The *Koinai ennoiai*. The word $\alpha\acute{\xi}\iota\omega\mu\alpha$. Plato's $\delta\mu\omicron\lambda\omicron\gamma\acute{\eta}\mu\alpha\tau\alpha$ and Euclid's $\alpha\acute{\xi}\iota\omega\mu\alpha\tau\alpha$. "The whole is greater than the part". A complex of axioms. The difference between postulates and axioms. Arithmetic and geometry. The science of space

The foundations of geometry. A reconsideration of some problems relating to early Greek mathematics. — *Appendix*: How the Pythagoreans discovered proposition II.5 of the "Elements".

Abu al-Hasan Ahmad ibn Ibrahim Al-Uqlidisi. — **The arithmetic of Al-Uqlidisi: the story of Hindu-Arabic arithmetic as told in "Kitab al-Fusul fi al-Hisab al-Hindi"**. — Translated and annotated by A. S. Saidan, from the unique copy, ms. 802 at Yeni Cami Library, Istanbul, written in the year 582 (A. D. 1186). — Un vol. relié, 16,5 × 24,5, de xvii, 492 p. — Prix: Dfl: 195.00. — D. Reidel publishing company, Dordrecht/Boston, 1978.

Introduction: Past attempts in the study of Islamic arithmetic. The present work. Transliteration. Outline of Islamic contact with Indian science. Arithmetic systems in Arabic texts; general remarks. The sexagesimal scale. Finger-reckoning. Indian arithmetic. Greek arithmetica. Types of texts. Hindi and Hindu. "Kitab al-Fusul fi al-Hisab al-Hindi", by Abú al-Hasan, Ahmad ibn Ibráhim, al-Uqlidisi. The subsidiary texts: A-type. Subsidiary texts: H-type. Subsidiary texts HA-type. Subsidiary texts: Islamic type. Subsidiary texts to Hindu sources. — *The text*: *The arithmetic of al-Uqlidisi*: Traduction des livres I, II, III, et IV de al-Uqlidisi. — *Remarks and comparative studies*: Aims and contents of the four books (The introductions to the four books). The numerals. Duplation and mediation. Addition and subtraction. Multiplication. Division. Fractions. Square roots. Cube roots. Checking. Profit and loss. Remarks on decimal fractions. A recapitulation.

Transactions of the eighth Prague conference on information theory, statistical decision functions, random processes held at Prague, from August 28 to September 1, 1978, volume C. — Un vol. relié, 17 × 24,5 de 330 p. — Prix: Dfl. 80.00. — D. Reidel publishing company, Dordrecht/Boston (in co-edition with Academia, publishing house of the Czechoslovak Academy of sciences, Prague), 1979.

32 exposés par: J. Aczél, Pl. Kannappan. R. Ahmad, M. A. Al-Mutair. F. Beichelt. I. Berkes, W. Philipp. F. Blanchard, D. Perrin, and M. P. Schützenberger. D. E. Boekee. H. T. Burley. O. M. Dukarskii (en russe). K. K. Ferentinos, T. Papaioannou. A. Földes. L. Rejtő, B. B. Winter. T. Gerstenkorn. E. Hensz, M. Kłosowska. A. Hordijk, F. A. van der Duyn Schouten. E. Hazen (en russe). A. Idzik. S. Ihara. R. Jiroušek. H. Korezlioglu. T. Kowalczyk, J. Cwik, E. Pleszczyńska. M. Krzysko. N. Kusolitsch. B. Ja. Levit (en russe). J. C. A. van der Lubbe. B. Pátek. N. S. Rajbman, P. Varlaky. T. Sasagawa. J. Szpirglas, G. Mazziotto. W. Thomsen. J. A. Víšek. Z. S. Zerakidze (en russe).

Ali Hasan NAYFEH, Dean T. MOOK. — **Nonlinear oscillations.** — Pure and applied mathematics. — Un vol. relié, 16 × 23,5, de xvi, 704 p. — Prix: £21.35. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1979.

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Patrick BILLINGSLEY. — **Probability and measure**. — Wiley series in probability and mathematical statistics. — Un vol. relié, 23,5 × 16, de xiv, 515 p. — Prix: £15.20. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1979.

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Nicolae POPESCU, Liliana POPESCU. — **Theory of categories**. — Un vol. broché, 17 × 23,5 de x, 337 p. — Prix: Dfl. 70.00. — Editura academei, Bucuresti/Sijthoff & Noordhoff, Alphen aan den Rijn, 1979.

Categories and functors: The notion of a category. Examples. Duality. — Special morphisms in a category. — Functors. — Equivalence of categories. — Equivalence relations on a category. — Limits and colimits. — Products and coproducts. — Some special limits and colimits. — Existence of limits and colimits. — Limits and colimits in the category of functors. — Adjoint functors. Commutation of functors with limits and colimits. — Categories of fractions. — Calculus of fractions. — Existence of a coadjoint to the canonical functor. — Subobjects and quotient objects. — Intersections and unions of subobjects. — Images and inverse images. Triangular decomposition of morphisms. — Relative triangular decomposition of morphisms. — *Completion of categories*: Proper functors. — The extension theorem. — Dense functors. — Σ -sheaves. — Topologies and sheaves. — Some adjoint theorems. — A generalization of the extension theorem. — Completion of categories. — Grothendieck topologies. — *Algebraic categories*: Algebraic

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Discrete optimization I. — Proceedings of the Advanced research institute on discrete optimization and systems applications of the Systems science panel of NATO and of the discrete optimization symposium, co-sponsored by IBM Canada and SIAM, Banff, Alta, and Vancouver, B. C., Canada, August 1977. — Edited by P. L. Hammer, E. L. Johnson, B. H. Korte. — *Annals of discrete mathematics*, vol. 4. — Un vol. relié, 17,5 × 24,5 de xii, 299 p. — Prix: Dfl. 120.00. — North-Holland publishing company. Amsterdam/New York/Oxford, 1979.

COMBINATORIAL AND POLYHEDRAL ASPECTS OF DISCRETE OPTIMIZATION: *Surveys*: C. Berge: Packing problems and hypergraph theory: a survey. — J. Edmonds: Matroid intersection. — P. L. Hammer: Boolean elements in combinatorial optimization. — A. J. Hoffman: The role of unimodularity in applying linear inequalities to combinatorial theorems. — B. Korte: Approximative algorithms for discrete optimization problems. — J. K. Lenstra & A. H. G. Rinnooy Kan: Computational complexity of discrete optimization problems. — L. Lovasz: Graph theory and integer programming. — J. Tind: Blocking and antiblocking polyhedra. — *Reports*: R. L. Graham: Complexity of combinatorial problems. — P. Hansen: Structural aspects of discrete problems. — A. J. Hoffman: Polyhedral aspects of discrete optimization. — SOME FUNDAMENTAL CLASSES OF PROBLEMS: *Surveys*: R. E. Burkard: Travelling salesman and assignment problems: a survey. — P. C. Gilmore: Cutting stock, linear programming, knapsacking, dynamic programming and integer programming, some interconnections. — V. Klee & D. Larman: Use of Floyd's algorithm to find shortest restricted paths. — E. L. Lawler: Shortest path and network flow algorithms. — M. W. Padberg: Covering, packing and knapsack problems. — *Reports*: D. de Ghellinck: Network flow, assignment and travelling salesman problems. — J. K. Lenstra: Algorithms for special classes of combinatorial optimization problems.

Discrete optimization II. — Proceedings of the Advanced research institute on discrete optimization and systems applications of the Systems science panel of NATO and of the discrete optimization symposium co-sponsored by IBM Canada and SIAM, Banff, Alta, and Vancouver, B. C., Canada, August 1977. — Ed. by P. L. Hammer, E. L. Johnson, B. H. Korte. — *Annals of discrete mathematics*, vol. 5. — Un vol. relié, 17,5 × 24,5 de vi, 453 p. — Prix: Dfl. 160.00. — North-Holland publishing company, Amsterdam/New York/Oxford, 1979.

METHODOLOGY: *Surveys*: E. Balas: Disjunctive programming. — P. Hansen: Methods of nonlinear 0-1 programming. — R. G. Jeroslow: An introduction to the theory of cutting planes. — E. L. Johnson: On the group problem and a subadditive approach to integer programming. — J. F. Shapiro: A survey of lagrangian techniques for discrete optimization. — K. Spielberg: Enumerative methods in integer programming. — *Reports*: E. Balas: Branch and bound/implicit enumeration. — M. Gondran: Cutting planes. — M. W. Padberg: Group theoretic and lagrangean methods. — *COMPUTER CODES*: *Surveys*: E. M. L. Beale: Branch and bound methods for mathematical programming systems. — A. Land and S. Powell: Computer codes for problems of integer program-

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H. C. P. BERBEE. — **Random walks with stationary increments and renewal theory.** — Mathematical centre tracts, vol. 112. — Un vol. broché, 16 × 24, de III, 223 p. — Prix: Dfl. 27.00. — Mathematisch centrum, Amsterdam, 1979.

Preliminaries: Introduction. Notations and conventions. Ergodic theory and stationary processes. Point processes. — *Renewal theory and coupling; an introduction.* — *Random walks with stationary increments*: Transient random walks. Point clusters and the behaviour at the origin. Recurrence and transience of a random walk. — *Palm theory*: Existence of a limit distribution in renewal theory. Palm theory and limit behaviour. — *A measure of dependence, coupling and weak Bernoulli processes*: A measure of dependence. Coupling and a measure of dependence. Successful coupling. Weak Bernoulli processes. — *The spreading behaviour of S_n* : Dependence structure and couplings for random walks. Loss of memory in a strongly nonlattice random walk. Loss of memory in a spread out random walk. — *Renewal theory*: Weak Bernoulli processes and loss of memory. Nonlattice and strongly nonlattice random walks. Renewal theory — the general case. Renewal theory — the countable and Markov case. Mixing and remixing for flows. — *A topology on a set of distributions of point processes.*

Algèbres d'opérateurs. — Séminaire sur les algèbres d'opérateurs, Les Plans-sur-Bex, Suisse, 13-18 mars 1978. — Edité par P. de la Harpe. — Lecture notes in mathematics, vol. 725. — Un vol. broché, 17 × 25, de VII, 309 p. — Prix: DM 32.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

G. Arsac: Quelques applications des C^* -algèbres et des algèbres de von Neumann à l'étude des représentations des groupes. — P. L. Aubert: Projecteurs dans $\mathcal{U}(G)$: un exemple. — A. Connes: Sur la théorie non commutative de l'intégration. — T. Fack & O. Maréchal: Application de la K -théorie algébrique aux C^* -algèbres. — U. Haagerup: A density theorem for left Hilbert algebras. — P. de la Harpe: Initiation à l'algèbre de Calkin. Moyennabilité du groupe unitaire et propriété P de Schwartz des algèbres de von Neumann. — B. Johnson: Characterization and norms of derivations on von Neumann algebras. — V. Jones: An invariant for group actions. — M. Karoubi: K -théorie algébrique de certaines algèbres d'opérateurs. — R. J. Plymen: Automorphic group representations: the hyperfinite II_1 factor and the Weyl algebra.

Non-commutative harmonic analysis. — Proceedings, Marseille-Luminy, France, June 26 to 30, 1978. — Actes du colloque d'analyse harmonique non-commutative. — Edited by Jacques Carmona and Michèle Vergne. — Lecture notes in mathematics,

vol. 728. — Un vol. broché, 17 × 25, de v, 244 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Dan Barbasch : Fourier transforms of some invariant distributions on a semisimple Lie group and Lie algebra. — *Weita Chang* : Global solvability of bi-invariant differential operators on solvable Lie groups. — *L. Clozel* : « Base change » géométrique: relèvement de la série principale de $GL(n, \mathbb{C}/\mathbb{R})$. — *J. Dixmier* : Sur la méthode des orbites. — *M. Duflo* : Polynômes de Vogan pour $SL(n, \mathbb{C})$. — *M. Flensted-Jensen* : On a fundamental series of representations related to an affine symmetric space. — *H.-P. Jakobsen* : Higher order tensor products of wave equations. — *K. D. Johnson & A. Koranyi* : Generalized Hua operators on bounded symmetric domains. — *A. Joseph* : W -module structure in the primitive spectrum of the enveloping algebra of a semisimple Lie algebra. — *M. Kashiwara & M. Vergne* : Functions on the Shilov boundary of the generalized half plane. — *M. Kashiwara & M. Vergne* : K -types and singular-spectrum. — *H. Moscovici* : A vanishing theorem for L^2 -cohomology in the nilpotent case. — *N. V. Pedersen* : Semi-characters of solvable Lie groups. — *S. Rallis* : The Eichler commutation relation and the continuous spectrum of the Weil representation.

Algebraic geometry. — Summer meeting, Copenhagen, August 7-12, 1978. — Edited by Knud Lønsted. — Lecture notes in mathematics, vol. 732. — Un vol. broché, 17 × 25, de vi, 658 p. — Prix: DM 58.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Basic principles of the theory of inference. The likelihood principle, sufficient statistics. Distance between probability measures. Sensitivity of a family of probability measures with respect to a parameter. Sensitivity rating, conditional sensitivity, the discrimination rate statistic. Efficacy, sensitivity, the Cramer-Rao inequality. Many parameters, the sensitivity matrix. Asymptotic power of a test, asymptotic relative efficiency. Maximum likelihood estimation. The sample distribution function. Mathematical preliminaries.

Charles Robert HADLOCK. — **Field theory and its classical problems,** — The Carus mathematical monographs, vol. 19. — Un vol. relié, $13,5 \times 19,5$, de xvi, 323 p. — Prix: £8.80. — The Mathematical association of America (Distr. pour l'Europe par John Wiley & Sons Ltd, Chichester), 1978.

Introduction. — *The three Greek problems*: Constructible lengths. Doubling the cube. Trisecting the angle. Squaring the circle. Polynomials and their roots. Symmetric functions. The transcendence of π . — *Field extensions*: Arithmetic of polynomials. Simple, multiple, and finite extensions. Geometric constructions revisited. Roots of complex numbers. Constructibility of regular polygons I. Congruences. Constructibility of regular polygons II. — *Solution by radicals*: Statement of the problem. Automorphisms and groups. The group of an extension. Two fundamental theorems. Galois' theorem. Abel's theorem. Some solvable equations. — *Polynomials with symmetric groups*: Background information. Hilbert's irreducibility theorem. Existence of polynomials over $\mathbb{Q}$ with group S_n . — Solutions to the problems.

Paul ARMINJON. — **Analyse numérique matricielle.** — Suivi de: « Méthodes de résolution de problèmes d'éléments finis » par Bertrand Mercier. — Séminaire de mathématiques supérieures, vol. 61. — Un vol. broché, 21×28 , de 453 p. — Prix: C\$ 13.00. — Les Presses de l'Université de Montréal, Montréal, 1978.

ANALYSE NUMÉRIQUE MATRICIELLE: *Réduction des matrices, matrices symétriques, valeurs propres.* — *Méthodes directes de résolution des systèmes linéaires*: Introduction. Différents types d'erreurs commises dans la résolution d'un système linéaire. Normes vectorielles et normes matricielles; suites de vecteurs et de matrices. Remarques fondamentales préliminaires sur la résolution des systèmes. La méthode d'élimination de Gauss. Conditionnement d'un système, systèmes mal conditionnés. Exemples de matrices mal conditionnées. Mise à l'échelle d'une matrice (« scaling »). La décomposition triangulaire $A = LU$. Factorisation d'une matrice définie positive: méthode de Cholesky. Matrices tridiagonales. Conditions pour qu'une matrice soit définie positive. Amélioration des résultats par itération. Arithmétique au point flottant, analyse des erreurs d'arrondi. Analyse de l'erreur d'arrondi dans la méthode de Gauss. Convergence de la méthode d'amélioration par itération. — *Résolution de systèmes linéaires par des méthodes itératives*: Introduction, principe des méthodes itératives. Méthodes de Jacobi, de Gauss-Seidel, et de relaxation de Young-Frankel. Convergence des méthodes de Jacobi, de Gauss-Seidel et de relaxation. Méthode des directions alternées de Peaceman-Rachford. Méthodes reposant sur la minimisation d'une forme quadratique. — *Méthodes de calcul numérique de valeurs propres et de vecteurs propres*: Introduction. Localisation des valeurs propres. Conditionnement d'un problème de valeurs propres. Itération vectorielle. Algo-

rithme des puissances (matrices quelconques). La méthode de Jacobi pour les matrices symétriques. Réduction à la forme tridiagonale (matrices symétriques). Matrices symétriques: transformation LR . La méthode QR . — MÉTHODES DE RÉOLUTION DE PROBLÈMES D'ÉLÉMENTS FINIS: *Introduction*. — *Assemblage de la matrice de rigidité*: Le problème à résoudre. Sous-matrice de rigidité. — *Problèmes de renumérotation*. — *Algorithmes de Cholesky et de Gauss pour les matrices-bande*: Méthode de Cholesky-bande. Méthode de Gauss-bande et méthode frontale. — *Méthode de sous-assemblage*: Exemple élémentaire. Généralisation.

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Programmation dynamique et jeux de hasard: Histoire du problème des secrétaires. Appel à la programmation dynamique. Description des stratégies optimales. Rendement de temps d'arrêt pour le problème des secrétaires. Minoration du rendement des temps d'arrêt de niveau donné. Majoration du rendement de certains temps d'arrêt. — *Méthodes stochastiques d'approximation*: Théorème de Weierstrass et opérateurs d'approximation. Théorie de Korovkin. Théorème de Müntz et opérateurs d'Arato-Rényi. Une classe de processus stochastiques. — *Mesure de type concave*: Introduction. Théorème d'Ibragimov. Inégalités intégrales. Applications de la théorie de Borell. Inégalités relatives à des ensembles convexes symétriques. — *Equation de la chaleur et mouvement brownien*: Introduction. Equation de la chaleur. Solution probabiliste à l'équation de la chaleur. Propagation de la chaleur dans une tige. Propagation de la chaleur dans un domaine borné régulier de R^n . Propagation de la chaleur dans un pavé de R^n . Le caractère spatialement analytique des solutions à l'équation de la chaleur. Propriétés du noyau. Refroidissement d'un objet convexe. Exemples.

Gérard LETAC. — **Chaîne de Markov sur les permutations**. — Séminaire de mathématiques supérieures, vol. 63. — Un vol. broché, 21×28 , de 117 p. — Prix: C\$ 6.00. — Les Presses de l'Université de Montréal, Montréal, 1978.

Introduction. Librairies. Classes et périodes d'une librairie. Récurrence — mesures stationnaires des librairies. La librairie de J. McCabe. La librairie de Tsetlin. La librairie d'Hendricks. Polices récurrentes. Librairie de transposition. Librairie mixte. Variantes russes. Librairies-quotient. Fonctionnelles. Optimisation. Appendice: Chaînes quotients.

Paul MALLIAVIN. — **Géométrie différentielle stochastique**. — Notes rédigées par Danièle Dehen et Dominique Michel. — Séminaire de mathématiques supérieures, vol. 64. — Un vol. broché, 22×28 , de 144 p. — Prix: C\$ 8.00. — Les Presses de l'Université de Montréal, Montréal, 1978.

Théorème de structure et calcul différentiel de Ito sur les intégrales stochastiques: Martingale L^2 adaptée à une famille croissante de tribus. Intégrale stochastique par rapport à une martingale. Théorème de structure (cas unidimensionnel). Calcul différentiel de Ito à une variable. Equations intégrales stochastiques. Calcul différentiel de Ito à plusieurs variables. Théorème de structure (cas multidimensionnel). La formule de Ito. Changement de temps, temps intrinsèque. — *Théorèmes de comparaison*: Mouvement de la projection sur R d'une diffusion. Estimées qualitatives globales des trajectoires d'une diffu-

sion et applications. Formules de Poisson. Théorème de comparaison multidimensionnelle. Applications, développements limités de diffusion et paramétrix trajectoires. — *Un principe de transfert de la géométrie différentielle à la géométrie stochastique* : La notation de Stratanovitch. Régularisation du brownien et théorème limite. Le principe de transfert. — *Annulation de formes harmoniques et propriétés ergodiques des diffusions* : Intégration stochastique de systèmes semi-elliptiques diagonaux dans leur symbole principal. Diffusion horizontale sur le fibré des repères orthonormés. Scalarisation des formes différentielles et opérateur de de Rham-Hodge. Formule de la moyenne et théorème d'annulation. Méthode du fibré tangent. Construction stochastique des semi-groupes associés aux conditions et aux limites de Neumann-Spencer. — *Méthode de contrôle optimal stochastique en analyse complexe dans $\mathbb{C}^n$* : Un problème de potentiel non linéaire: le problème de Monge-Ampère complexe. Lemme de dualité. Espace des contrôles kählériens. Régularité de la fonction u . Forme intégrée du lemme de programmation dynamique. Preuve du théorème principal.

Heinz-Otto KREISS. — **Numerical methods for solving time-dependent problems for partial differential equations.** — Séminaire de mathématiques supérieures, vol. 65. — Un vol. broché, 22 × 28, de 114 p. — Prix: C\$8.00. — Les Presses de l'Université de Montréal, Montréal, 1978.

The Cauchy problem for partial differential equations : Notations and examples. Well posed problems. Equations with constant coefficients. The Cauchy problem for equations with variable coefficients I. The Cauchy problem for equations with variable coefficients II. Duhamel's principle. — *Difference approximation for the Cauchy problem* : Introduction. A simple example. Stability, accuracy and convergence. Difference approximations with constant coefficients. Difference approximations with variable coefficients I. The energy method: difference approximations with variable coefficients II. On the efficiency of a difference scheme. Trigonometric interpolation and the Fourier method. — *Initial-boundary value problems for hyperbolic partial differential equations* : Differential equations in one space dimension. The energy method. Laplace transform. Problems with variable coefficients in general domains. Difference approximations in one space dimension. Difference approximations in more than one space dimension.

Samuil Leibovich KRUSHKAL'. — **Quasiconformal mappings and Riemann surfaces.** — Edited by Irvin Kra. — Scripta series in mathematics. — Un vol. relié, 15 × 22,5, de XII, 319 p. — Prix: £15.20. — V. H. Winston & Sons, Washington, D. C. (Distrib. solely by Halted press, a division of John Wiley & Sons, Inc., New York), 1979.

General information : Certain spaces of functions, integral operators. Quasiconformal mappings of plane regions. Riemann surfaces and their fundamental groups. Discontinuous groups of fractional linear transformations. Quasiconformal mappings of Riemann surfaces. Marked Riemann surfaces and Teichmüller spaces. Holomorphic and meromorphic differentials on Riemann surfaces. Some Banach spaces of holomorphic quadratic differentials, the Schwarzian derivative. — *Basic extremal problems in the theory of quasiconformal mappings of Riemann surfaces of finite type* : Variational formulas for quasiconformal mappings. Teichmüller's problem, formulation of the theorem. Variations of a marked Riemann surface. Proof of theorem 2. A uniqueness theorem, homeomorphic embedding of the space $T_{g,n,1}$ into the Euclidean space R^m . The problem B1. Mappings of a torus and an annulus, other extremal problems. — *Quasiconformal mappings with a given boundary correspondence and mappings of open Riemann surfaces of infinite genus* :

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James C. CANTRELL. — **Geometric topology**. — Proceedings of the 1977 Georgia topology conference held in Athens, Georgia, August 1-12, 1977. — Edited by James C. Cantrell. — Un vol. relié, 18,5 × 23,5, de XIII, 698 p. — Prix: \$36.00. — Academic press, New York/San Francisco/London, 1979.

LOW DIMENSIONAL MANIFOLDS: *R. H. Bing and Michael Starbird*: A decomposition of S^3 with a null sequence of cellular arcs. — *Joan S. Birman and Jerome Powell*: Special representations for 3-manifolds. — *Dan Everett*: Shrinking countable decompositions of E^3 into points and tame cells. — *Gene G. Garza*: Local spanning missing loops. — *O. G. Harrold*: A problem of rushing. — *O. G. Harrold*: An additive index theorem for certain wildly embedded arcs and curves. — *William Jaco and Peter B. Shalen*: Seifert fibered spaces in 3-manifolds. — *Klaus Johannson*: On exotic homotopy equivalences of 3-manifolds. — *R. C. Kirby and M. G. Scharlemann*: Eight faces of the Poincaré homology — 3-sphere. — *Richard Mandelbaum*: Decomposing analytic surfaces. — *José Maria Montesinos*: Heegaard diagrams for closed 4-manifolds. — *Michael Starbird and Edythe P. Woodruff*: Decompositions of E^3 with countably many non-degenerate elements. — *Edythe P. Woodruff*: Decompositions of E^3 into cellular sets. — TOPOLOGY OF MANIFOLDS: *J. W. Cannon, J. L. Bryant and R. C. Lacher*: The structure of generalized manifolds having nonmanifolds set of trivial dimension. — *Sylvain E. Cappell and Julius L. Shaneson*: Embeddings and immersions of four dimensional manifolds in R^6 . — *Jerome Dancis*: General position maps for topological manifolds. — *Karl Heinz Dovermann*: The equivariant surgery problem for involutions. — *Allan L. Edmonds*: The degree of a branched covering of a sphere. — *D. Galewski and R. Stern*: A universal 5-manifold with respect to simplicial triangulations. — *W.-C. Hsiang*: On $\pi_i \text{ DIFF } M^n$. — *Lowell Jones*: Construction of surgery problems. — *Yukio Matsumoto*: Wild embeddings of piecewise linear manifolds in codimension two. — *Dusa McDuff*: Foliations and monoids of embeddings. — *Richard Randell*: On the topology of nonisolated singularities. — *Martin Scharlemann*: Approximating CAT CE maps by CAT homeomorphisms. — *L. Siebenmann and D. Sullivan*: On complexes that are Lipschitz manifolds. — *Neal W. Stoltzfus*: Isometries of inner product spaces and their geometric applications. — *Dennis Sullivan*: Hyperbolic geometry and homeomorphisms. — *J. B. Wagoner*: K_2 and diffeomorphisms of two and three dimensional manifolds. — SHAPE THEORY AND INFINITE DIMENSIONAL TOPOLOGY: *T. A. Chapman*: Concordances of Hilbert cube manifolds and tubular neigh-

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Numerical mathematics = Numerische Mathematik. — Symposium on the occasion of the retirement of Lothar Collatz at the Institute for applied mathematics, University of Hamburg, January 25-26, 1979. — Edited by R. Ansorge, K. Glashoff, B. Werner. — International series of numerical mathematics, vol. 49. — Un vol. relié, 17 × 25, de 207 p. — Prix: SF 42.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1979.

U. Eckhardt : Der Einfluss von Lothar Collatz auf die angewandte Mathematik. — *G. Fichera* : The problem of the completeness of systems of particular solutions of partial differential equations. — *H. Heinrich* : Über frühe historische Entwicklungsrichtungen in der numerischen Mathematik. — *J. J. Buoni and R. S. Varga* : Theorems of Stein-Rosenberg type. — *B. Bohl* : Zum Differenzenverfahren bei gewöhnlichen Differentialgleichungen. — *L. Elsner* : Neuere Verfahren zur Bestimmung der Eigenwerte von Matrizen. — *W. Krabs* : Optimal error estimates for linear operator equations. — *F. Lempio* : Dualität und Stabilität. — *G. Meinardus* : Segmentielle Approximation und H -Mengen. — *F. Natterer* : Genauigkeitsfragen bei der numerischen Rekonstruktion von Bildern. — *H. Voss und B. Werner* : Ein Quotienteneinschlussatz für den kritischen Parameter nichtlinearer Randwertaufgaben. — *H. Werner* : Extrapolationsmethoden zur Bestimmung der beweglichen Singularitäten von Lösungen gewöhnlicher Differentialgleichungen. — *J. Werner* : Superlinear konvergente Verfahren der zulässigen Richtungen. — *W. Wetterling* : H -Mengen und Minimalbedingungen bei Approximationsaufgaben.

Constructive methods for nonlinear boundary value problems and nonlinear oscillations. — Conference at the Oberwolfach mathematical research institute, Black Forest, November 19-25, 1978. — Edited by J. Albrecht, L. Collatz, K. Kirchgässner. — International series of numerical mathematics, vol. 48. — Un vol. broché, 16,5 × 24, de 190 p. — Prix: SF 40.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1979.

W. J. Beyn : On the convergence of the finite difference method for nonlinear ordinary boundary value problems. — *C. W. Cryer and H. Fetter* : The numerical solution of axisymmetric free boundary porous flow well problems using variational inequalities. — *K. Georg* : An iteration method for solving nonlinear eigenvalue problems. — *H. Hackl, Hj. Wacker, W. Zulehner* : Aufwandsoptimale Schrittweitensteuerung bei Einbettungsmethoden. — *G. Joubert* : Explicit Hermitian methods for the numerical solution of parabolic partial differential equations. — *P. P. Klein* : Zur Einschliessung des betragskleinsten Eigenwertes bei Eigenwertaufgaben mit gewöhnlichen Differentialgleichungen vierter Ordnung. — *J. Mawhin* : Periodic solutions of nonlinear dispersive wave equations. — *R. Rautmann* : Eine Fehlerschranke für Galerkinapproximation lokaler Navier-Stokes-Lösungen. — *R. Reissig* : Continua of periodic solutions of the Liénard equation.

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Das Riemannsche Integral: Begriff des Riemannschen Integrals. Existenz. Elementare Eigenschaften. Integral über ein endliches Intervall. Allgemeine Riemannsche Summen.

Hauptsatz der Infinitesimalrechnung. — *Integralrechnung*: Stammfunktionen. Partielle Integration. Substitution. Bestimmte Integrale. Uneigentliche Integrale. Vergleich von uneigentlichen Integralen mit Reihen. — *Integration der rationalen Funktionen*: Reelle und komplexe Polynome. Partialbruchzerlegung einer rationalen Funktion. Integration der Partialbrüche. Weitere Ausdrücke, die sich elementar integrieren lassen. — *Kurven*: Begriff der Kurve. Totale Variation. Länge einer Kurve. Beispiele. Bogenlänge als Parameter. Tangentialvektor. — *Ebene Kurven*: Argumentzuwachs längs einer ebenen Kurve. Ableitung des Arguments. Krümmung von ebenen Kurven. Krümmungskreis. Evolute. Evolvente. — *Funktionenfolgen*: Problemstellung. Gleichmässige Konvergenz. Stetigkeit der Grenzfunktion. Ableitung der Grenzfunktion. Integral der Grenzfunktion. Integrale mit einem Parameter. — *Potenzreihen*: Limes inferior und Limes superior. Potenzreihen. Die Binomialreihe. Der Satz von Abel. — *Die Ableitung einer Funktion $f: \mathbb{R}^m \rightarrow \mathbb{R}^n$* : Funktionen $f: \mathbb{R}^m \rightarrow \mathbb{R}^n$. Lineare Abbildungen. Begriff der Ableitung. Partielle Ableitungen. Existenz der Ableitung. Die Spezialfälle $m = 1$ und $n = 1$. — *Mehrdimensionale Differenzialrechnung*: Differentiationsregeln. Anwendungen der Kettenregel. Mittelwertsätze. Höhere partielle Ableitungen. Taylorsche Formel. Stationäre Punkte und lokale Extrema.

Sigurdur HELGASON. — *Differential geometry, Lie groups, and symmetric spaces*. — Pure and applied mathematics: a series of monographs and textbooks. — Un vol. relié, 16 × 24, de xv, 628 p. — Prix: \$27.00. — Academic press. New York/San Francisco/London, 1978.

Elementary differential geometry: Manifolds. Tensor fields. Mappings. Affine connections. Parallelism. The exponential mapping. Covariant differentiation. The structural equations. The Riemannian connection. Complete Riemannian manifolds. Isometries. Sectional curvature. Riemannian manifolds of negative curvature. Totally geodesic submanifolds. Appendix: Topology, mappings of constant rank. — *Lie groups and Lie algebras*: The exponential mapping. Lie subgroups and subalgebras. Lie transformation groups. Coset spaces and homogeneous spaces. The adjoint group. Semisimple Lie groups. Invariant differential forms. Perspectives. — *Structure of semisimple Lie algebras*: Preliminaries. Theorems of Lie and Engel. Cartan subalgebras. Root space decomposition. Significance of the root pattern. Real forms. Cartan decompositions. Examples. The complex classical Lie algebras. — *Symmetric spaces*: Affine locally symmetric spaces. Groups of isometries. Riemannian globally symmetric spaces. The exponential mapping and the curvature. Locally and globally symmetric spaces. Compact Lie groups. Totally geodesic submanifolds. Lie triple systems. — *Decomposition of symmetric spaces*: Orthogonal symmetric Lie algebras. The duality. Sectional curvature of symmetric spaces. Symmetric spaces with semisimple groups of isometries. Notational conventions. Rank of symmetric spaces. — *Symmetric spaces of the noncompact type*: Decomposition of a semisimple Lie group. Maximal compact subgroups and their conjugacy. The Iwasawa decomposition. Nilpotent Lie groups. Global decompositions. The complex case. — *Symmetric spaces of the compact type*: The contrast between the compact type and the non-compact type. The Weyl group and the restricted roots. Conjugate points, singular points, the diagram. Applications to compact groups. Control over the singular set. The fundamental group and the center. The affine Weyl group. Application to the symmetric space U/K . Classification of locally isometric spaces. Geometry of U/K . Symmetric spaces of rank one. Shortest geodesics and minimal totally geodesic spheres. Appendix, results from dimension theory. — *Hermitian symmetric spaces*: Almost complex manifolds. Complex tensor fields. The Ricci curvature. Bounded domains. The kernel function. Hermitian symmetric spaces of the compact type and the noncompact type. Irreducible

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Einleitung: Überblick. Zentrale Fragestellungen und Hypothesen. Hinweise für den Leser. Danksagung. — *Computerunterstützter Unterricht*: Allgemeines. Computer als Instrument der Unterrichtsforschung. Das verwendete CUU-System. Auswertung der Dialogprotokolle mit dem Programmsystem DIDAS. — *Das entwickelte Lehrprogramm*: Randbedingungen. Das Konzept des Lehrprogramms «ZÄHL». Programmstruktur. Protokollierung von arithmetischen Variablen. Technische Angaben. Beispiel für die Entwicklung des Programms. — *Tests*: Lehrzieltest. Weitere Tests und Fragebögen. — *Versuchsdurchführung*: Versuchsplan. Versuchsbericht. Erfassung und Speicherung von Schülerdaten. Zusammenfassung von Klassen für die Auswertung. — *Ergebnisse der Untersuchung*: Lehrzieltests. Aussagen über den Dialogverlauf. Auswertung der Eingaben. Zusammenhänge zwischen den Variablen. Befunde zum Operatorkonzept. — *Erfahrungsbericht*: Vorbemerkung. Erfahrungen mit dem CUU-System LIDIA. Auswertung der Dialogprotokolle. Zum CUU-Programm ZÄHL. — *Mathematische und fachdidaktische Grundlagen des Bruchrechnens*: Bruchzahlen als Äquivalenzklassen von Paaren ganzer Zahlen. Bruchzahlen als Operatoren auf Grössenbereichen. Bruchzahlen in fachdidaktischer Sicht. Der Bruchzahlbegriff des entwickelten Lehrprogramms.

Mathematics and the real world: proceedings of an International workshop, Roskilde university centre (Denmark), 1978. — Ed. by Bernhelm Booss, Mogens Niss. — Interdisciplinary systems research, vol. 68. — Un vol. broché, 16×23 , de 136 p. — Prix: Sfr. 32.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1979.

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