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Abraham ROBINSON. — **Selected papers of Abraham Robinson. Vol. 2: Nonstandard analysis and philosophy.** — Edited and with introductions by W. A. J. Luxemburg and S. Körner. — Un vol. relié, 19 × 26, de XLV, 582 p. — Prix: Dfl. 100.000.— North-Holland publishing company, Amsterdam/New York/Oxford, 1979.

Biography of Abraham Robinson. — Introduction to papers on nonstandard analysis and analysis. — Introduction to papers on philosophy. — Nonstandard analysis and analysis : Non-standard analysis. On languages which are based on non-standard arithmetic. On generalized limits and linear functionals. On the theory of normal families. Solution of an invariant subspace problem of K. T. Smith and P. R. Halmos (with Allen R. Bernstein). Topics in non-archimedean mathematics. A new approach to the theory of algebraic numbers. A new approach to the theory of algebraic numbers II. Non-standard theory of Dedekind rings. Nonstandard arithmetic. On some applications of model theory to algebra and analysis. Topics in nonstandard algebraic number theory. A set-theoretical characterization of enlargements (with Elias Zakon). Germs. Elementary embeddings of fields of power series. Compactification of groups and rings and non-standard analysis. Algebraic function fields and non-standard arithmetic. Nonstandard model, I, the technique of nonstandard analysis in theoretical physics (with Peter J. Kelemen), II, the standard model from a nonstandard point of view (with Peter J. Kelemen). A limit theorem on the cores of large standard exchange economies (with Donald J. Brown). Function theory on some nonarchimedean fields. Nonstandard points on algebraic curves. Enlarged sheaves. The cores of large standard exchange economies (with Donald J. Brown). On the finiteness theorem of Siegel and Mahler concerning diophantine equations (with P. Roquette). Standard and nonstandard number systems. On the integration of hyperbolic differential equations. On functional transformations and summability. Core-consistency and total inclusion for methods of summability (with G. G. Lorentz). — *Philosophy :* On constrained denotation. Formalism. Model theory. The metaphysics of the calculus. Concerning progress in the philosophy of mathematics. Some thoughts on the history of mathematics.

Abraham ROBINSON. — **Selected papers of Abraham Robinson. Vol. 3: Aeronautics.** — Edited and with an introduction by A. D. Young. — Un vol. relié, 19 × 26, de XXXII, 269 p. — Prix: Dfl. 75.00. — Yale university press, New Haven/London, 1979.

Biography of Abraham Robinson. — Introduction. — Papers : Shock transmission in beams. The wave drag of diamond-shaped aerofoils at zero incidence. Aerofoil theory of a flat delta wing at supersonic speeds. Bound and trailing vortices in the linearised

theory of supersonic flow and the downwash in the wake of a delta wing (witht J. H. Hunter-Tod.) On some problems of unsteady supersonic aerofoil theory. On source and vortex distributions in the linearized theory of steady supersonic flow. The aerodynamic derivatives with respect to sideslip for a delta wing with small dihedral at zero incidence at supersonic speeds (with J. H. Hunter-Tod.) Wave reflexion near a wall. Non-uniform supersonic flow. On some problems of unsteady aerofoil theory. On the motion of small particles in a potential field of flow. Wave propagation in an heterogeneous elastic medium. Transient stresses in beams of variable characteristics. On flexural wave propagation in nonhomogeneous elastic plates (with A. E. Hurd).

Anthony V. GERAMITA, Jennifer SEBERRY. — **Orthogonal designs: quadratic forms and Hadamard matrices.** — Lecture notes in pure and applied mathematics, vol. 45. — Un vol. broché, 18 × 26, de x, 460 p. — Prix: FS 78.00. — Marcel Dekker, New York/Basel, 1979.

Orthogonal designs: the problem and remarks on its solution. — Some algebraic and combinatorial nonexistence results. — The algebraic theory of orthogonal designs. — General constructions for orthogonal designs. — Amicable orthogonal designs. —Robinsons's theorem. — The existence of Hadamard matrices and asymptotic existence results for orthogonal designs. — Results on the existence conjectures: numerical results, unsolved problems. — *Appendices*: Order 12: First rows to use in the Goethals-Seidel array. Order 20: First rows to use in the Goethals-Seidel array. Orthogonal designs in powers of 2, especially orders 16, 32 and 64. Orthogonal designs in order 24. Orthogonal designs in orders 40, 80. Results, by order, on orthogonal designs in orders $n \equiv 0 \pmod 4$. Some complementary sequences. Product designs. Designs which may exist in order $n \equiv 0 \pmod 4$. The smallest t such that an Hadamard matrix of order $2^t q$ exists for q (odd) $<$ 10,000. Amicable orthogonal designs in order 12.

Gert K. PEDERSEN. — **C*-algebras and their automorphism groups.** — London mathematical society monographs, vol. 14. — Un vol. relié, 16 × 24, de IX, 416 p. — Prix: US$55.00. — Academic press, London/New York/San Francisco, 1979.

Abstract C*-algebras. — Concrete C*-algebras. — Functionals and representations. — Decomposition theory. — Weights and traces. — Type I C*-algebras. — Automorphism groups. — Spectral theory for automorphism groups. — References. — Appendix.

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A theory of Mellin transformations: Generalities. Asymptotic expansions. The classical case. The case of the **R**-fields. The case of p-fields. *Appendix*: Poisson formula of Hecke type. — *Dual asymptotic expansions:* Fourier transforms of quasi-characters. — *Local arithmetic theory of forms of higher degree:* Three functions. Preparations for the proof of the "main theorem". Proof of theorem 1.6 for p-fields. Proof of theorem 1.6 for **R**-fields. Appendix: Generalised gaussian sums and singular series (local case). — *Poisson formula of Siegel-Weil type:* Formulation of a Poisson formula. Criteria for the validity of the Poisson formula and applications. The Siegel formula. Other Siegel formulas. Siegel's main theorem for quadratic forms. Proof of the criterion for the validity of the Poisson formula.

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Béla BOLLOBAS. — **Graph theory: an introductory course.** — Graduate texts in mathematics, vol. 63. — Un vol. relié, 16 × 24,5 de x, 180 p. — Prix: DM 34.00. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

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K. Georg — K. P. Hadeler — J. K. Hale — G. Hetzer — J. L. Kaplan, J. A. Yorke — K. Kunisch, W. Chappacher — G.V.D. Laan, A.J.J. Talman — T. Y. Li, J. A. Yorke — J. A. Nohel — R. D. Nussbaum — H. O. Peitgen, M. Prüfer — M. Prüfer, H. W. Siegberg — R. Saigal, Y. S. Shin — J. Scheurle — K. Schmitt — M. J. Todd — A. J. Tromba — H. O. Walther.

Reinhard Poeschel und Lev. A. Kaluznin. — **Funktionen- und Relationenalgebren: ein Kapitel der diskreten Mathematik.** — Lehrbücher und Monographien aus dem Gebiete der exakten Wissenschaften: mathematische Reihe, Bd. 67. — Un vol. relié, 18 × 24,5, de 259 p. — Prix: FS 60.00. — Birkhäuser Verlag, Basel/Stuttgart, 1979.

Einleitung: Funktionen und Funktionenalgebren. Funktionen und invariante Relationen. Relationenalgebren und gesteuerte Systeme. Ein Überblick. Permutationsgruppen. Das Kapitel 8. — *Funktionen- und Relationenalgebren, die Invarianzbeziehung:* Grundbegriffe und Eigenschaften. Charakteriesierungssätze. Halbgruppen, Gruppen und Krasner-Algebren. — *Funktionen- und Relationenalgebren, logische und algebraische Strukturuntersuchungen:* Beschreibung der Relationenalgebren in der Sprache der mathematischen Logik. Beispiele von Funktionen- und Relationenalgebren. Algebraische Konstruktionen und invariante Relationen. — *Der Verband der Funktionenalgebren:* Die Verbände $\ddot{\sim}A$ und $\mathscr{L}^*_A$. Kettenbedingungen. Einbettungssätze. Algebraische Eigenschaften von P_A und P'_A. — *Funktionen- und Relationenalgebren mit speziellen Eigenschaften:* Endlich erzeugbare Funktionen- und Relationenalgebren. Normalformen und Algorithmen. Maximale Funktionenalgebren. Minimale Funktionenalgebren. — *Funktionale und relationale Vollständigkeit:* Allgemeine Vollständigkeitskriterien. Das Vollständigkeitsproblem in der mehrwertigen Logik. Spezialisierte Vollständigkeitsprobleme für Funktionenalgebren. Relationale Vollständigkeit. Vollständigkeitsbegriffe für universale Algebren. — *Mehrsortige Funktionenalgebren:* Mehrsortige Funktionenalgebren und deren Invarianten. Vollständigkeitsbedingungen. — *Einige Anwendungen:* Kombinatorische Automaten. Funktionen und Relationen der 3-wertigen Logik und ihre Realisierung. Kombinatorische Automaten mit Verzögerung (V-Automaten). Heterogene Automaten. — *Permutationsgruppen:* Permutationsgruppen und invariante Relationen. Grundbegriffe und allgemeine Eigenschaften. Vertauschungsringe (V-Ringe) und 2-Bahnen. S-Ringe. S-Ringe über zyklischen Gruppen. Das Isomorphieproblem für zyklische Graphen. — *Algebraischer Anhang:* Mengentheoretische Grundbegriffe und Bezeichnungen. Universale (und relationale) Algebren. Beispiele universaler und relationer Algebren. Halbordnungen und Verbände. Galois-Korrespondenzen und Hüllenoperatoren. Formeln des Prädikatenkalküls 1. Stufe.

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Generalized stochastic processes: Definition of generalized stochastic processes. Strict sense stationarity and ergodicity; Gaussian processes. Embedding of ordinary stochastic processes. — *Expectation function, autocorrelation function and Wigner distribution of generalized stochastic processes:* Definitions and main properties. Second order stationarity. — *Convolution theory and generalized stochastic processes; Wigner distribution and second order simulation:* Preparation. Convolution theory and time stationarity. Shot noise processes. Time-frequency convolutions and the Wigner distribution for

generalized stochastic processes. Second order simulation by means of noise showers. — *The Wigner distribution and generalized harmonic analysis:* Some important notions in generalized harmonic analysis. A Tauberian theorem. Generalized Wiener classes. Generalized harmonic analysis and the Wigner distribution; applications to generalized stochastic processes. — *The spaces S and S*:* Introduction. Convergence and topology in the spaces S and S^*. Continuous linear functionals of S and S^*. Continuous linear operators of S and S^*. S^* as a measure space. — *Convolution theory in S and S*.* — *The Wigner distribution for smooth and generalized functions:* The Wigner distribution for smooth functions. The Wigner distribution for generalized functions. — *Two theorems on generalized functions of several variables:* Translation invariance of generalized functions. Generalized functions of positive type.

R. E. EDWARDS. — **A formal background to mathematics Ia and Ib: logic, sets and numbers.** — Universitext. — 2 vol. brochés, 15 × 23,5, non disponibles séparément, partie Ia: XXXIV, p. 1-467, partie Ib: IX, p. 468-933. — Prix: DM 59.50. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

PART Ia: *Logic and formal theories:* The idea of a formal language. A formal language, constructions, sentences, sets. Axioms, theories, proofs and theorems. Methods of proof. General comments. Summary of the chapter. — *Elements of set theory:* Introduction. Equality of sets. Inclusion and subsets. The set builder or classifier. Couples and singletons. The empty set. Unions. Intersections. Further basic properties of unions and intersections. Disjoint sets. Relative complements. Power sets. The schemas and axioms of set theory. Informal introduction of certain sets. A minimising theorem. — *Relations:* Introduction. Ordered pairs. Relations. — *Functions:* Basic definitions and properties. Comments on the function concept. Implicit functions and their existence. The axiom of choice. Inverse and composite functions. Sequences. Sequences defined by recurrence formulas. Ordered triplets, etc. The use of the term "variable". Families. Review of the semiformal language. — PART Ib: *Natural numbers and mathematical induction:* Preliminary remarks. The set N. The induction principle; examples of inductive proofs. Discussion of routine proofs by induction; further examples. Definition by recursion. Order and arithmetic in N. Finite and infinite sets. The function min N. Two theorems of Euclid about primes. Variants of the induction principle and theorem. Fallacious use of the principle of induction. Other definitions of natural numbers. The roles of natural numbers. Concerning conditional definitions. — *Concerning Z, Q and R:* The constructive approach. The structural approach. Specification of R. Essential uniqueness. The final position. Some elementary corollaries. Finite sums. Remarks concerning formalities. Polynomial forms over R. More about the use of informal language. — *Appendix.* — *Problems.*

Keith J. DEVLIN. — **Fundamentals of contemporary set theory.** — Universitext. — Un vol. broché, 15 × 23,5, de VIII, 182 p. — Prix: DM 19.00. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

Naive set theory: What is a set? Operations on sets. Notation for sets. Sets of sets. Relations. Functions. Well-orderings and ordinals. — *The Zermelo-Fraenkel axioms:* The language of set theory. The mulative hierarchy of sets. Zermelo-Fraenkel set theory. Axioms for set theory. Summary of the Zermelo-Fraenkel axioms. Classes. Set theory as an axiomatic theory. The recursion principle. The axiom of choice. — *Ordinal and cardinal numbers:* Ordinal numbers. Addition of ordinals. Multiplication of ordinals.

Sequences of ordinals. Ordinal exponentiation. Cardinality. Cardinal numbers. Arithmetic of cardinal numbers. Cofinality. Singular and regular cardinals. Cardinal exponentiation. Inaccessible cardinals. — *Some topics in pure set theory :* The Borel hierarchy. Closed unbounded sets. Stationary sets and regressive functions. Trees. Extensions of Lebesgue measure. A result about the *GCH*. — *The axiom of constructibility :* Constructible sets. The constructible hierarchy. The axiom of constructibility. The consistency of constructible set theory. Use of the axiom of constructibility. — *Independence proofs in set theory :* Some examples of undecidable statements. The idea of a boolean-valued universe. The boolean-valued universe. V^B and V. Boolean-valued sets and independence proofs. The non-provability of *CH*.

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gleichung. Die Laplacesche Gleichung. — *Anhang A:* Einfache Definitionen und Sätze aus der Theorie der Funktionen mehrerer Veränderlicher. — *Anhang B:* Folgen und Reihen. — *Anhang C:* Einführung in *APL*. — *Lösungen zu ungeradzahligen Aufgaben.*

Yoshiomi NAKAGAMI, Masamichi TAKESAKI. — **Duality for crossed products of von Neumann algebras.** — Lecture notes in mathematics, vol. 731. — Un vol. broché, 16,5 × 24, de IX, 139 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Action, co-action and duality: Duality for crossed products (Abelian case). Duality for crossed products (general case). Roberts action and Tannaka-Tatsuuma duality. Supplementary formulas. — *Elementary properties of crossed products:* Fixed points in crossed products. Characterization of crossed products. Commutants of crossed products. — *Integrability and dominance:* operator valued weights. Integrability and operator w. Integrable actions and co-actions. Dominant actions and co-actions. — *Spectrum:* The Connes spectrum of co-actions. Spectrum of actions. The center of a crossed product and $\Gamma(\delta)$. Co-actions and Robert actions. — *Perturbation of actions and co-actions:* Comparison of 1-cocycles of action and co-action. Dominant 1-cocycles. Action of G on the cohomology space. — *Relative commutant of crossed products:* Relative commutant theorem. Stability. — *Applications to Galois theory:* Subgroups and crossed products. Subalgebras in crossed products. Galois correspondences. Galois correspondences (II).

Frederick BLOOM. — **Modern differential geometric techniques in the theory of continuous distributions of dislocations.** — Lecture notes in mathematics, vol. 733. — Un vol. broché, 16,5 × 24, de XII, 206 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Mathematical preliminaries: Introduction. Differentiable manifolds. Fibre bundles, associated principal bundles, and some examples. Lie algebras, the exponential map, and fundamental fields on $E(M)$. "G" connections on $E(M)$ and parallel transport. Covariant derivatives, curvature, torsion and flatness. — *Material uniformity in elasticity:* Introduction. Body manifolds, motions, and deformation gradients. Force and stress in continuum mechanics. The constitutive equation of a simple elastic point; material isomorphisms and materially uniform elastic bodies. The symmetry groups of a materially uniform simple elastic body. Material charts and material atlases; the material tangent bundle $T(B, \Phi)$ and the bundle of reference frames $E(B, \Phi)$. Material connections on simple elastic bodies. Homogeneity, local homogeneity, and material connections. Field equations of motion. — *Generalized elastic bodies:* Introduction. Index sets and generalized elastic bodies. Local material automorphisms, phase and transition points, the phase isotropy group. Material isomorphisms in generalized elasticity. The material-index atlas. Material tangent bundles and index bundles; the material and index atlases, homogeneity and local homogeneity. Material and index connections. Field equations of motion in generalized elasticity. — *Anelastic behavior and dislocation motion:* Introduction. Elastic and anelastic response functions; anelastic transformations. Anelastic symmetry groups and anelastic inner products. Flow rules; uniqueness of the anelastic transformation function. Material uniformity in the theory of anelasticity. Elastic and anelastic material connections. Anelastic solid bodies; dislocation motions. Equations of motion for anelastic bodies. — *Thermodynamics and dislocation motion:* Introduction. The concept of a thermoelastic point; the Clausius-Duhem inequality. Geometric struc-

tures on thermoelastic bodies with uniform symmetry. Thermodynamics and anelastic response. Symmetry isomorphism and symmetry groups in thermo-anelasticity. Structural connections on thermo-anelastic bodies. Field equations for thermoelastic and thermo-anelastic bodies. — *Some recent directions in current research.*

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G. Elliott : On totally ordered groups, and K_0. — *J. Fisher :* Semiprime crossed products. — *K. Fuller :* Biserial rings. — *K. Goodearl :* The state space of K_0 of a ring. — *K. Goodearl :* Simple noetherian rings, the Zaleskii-Heroslavskii examples. — *J. M. Goursaud et J. Pascaud :* Anneaux de polynômes semi-héréditaires. — *D. Handelman and J. Lawrence :* Lower K-theory, regular rings and operator algebras, a survey. — *M. Hochster :* Principal ideal theorems. — *L. Levy :* Modules over the cyclic group of prime order. — *B. Osofsky :* Remarks on projective dimension of χ-unions. — *G. Renault :* Actions de groupes et anneaux réguliers injectifs. — *L. Roberts and S. Geller :* K_2 of some truncated polynomial rings. — *R. Snider :* Is the Brauer group generated by cyclic algebras? — *T. Stafford :* K-theory of noetherian group rings. — *A. A. Suslin :* The cancellation problem for projective modules and related topics. — *R. Warfield :* Modules over fully bounded noetherian rings.

Bernard AUPETIT. — **Propriétés spectrales des algèbres de Banach.** — Lecture notes in mathematics, vol. 735. — Un vol. broché, 16,5 × 24, de XII, 192 p. — Prix: DM 25.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Propriétés générales du spectre : Propriétés classiques. Sous-harmonicité du spectre. Quelques applications de la sous-harmonicité du spectre. Pseudo-continuité du spectre plein. Exemples de discontinuité spectrale. — *Caractérisation des algèbres de Banach commutatives :* Caractérisation par la norme et le spectre. Deux problèmes de Hirschfeld et Zelazko. Quelques cas particuliers de commutativité. — *Caractérisation des algèbres de Banach de dimension finie :* Sur la rareté des opérateurs de spectre fini. Caractérisation des algèbres de Banach de dimension finie. Caractérisation des algèbres modulaires annihilatrices. Applications à la théorie des algèbres de Banach. Applications à la théorie des algèbres de fonctions. — *Caractérisation des algèbres de Banach symétriques.*

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Multivariate approximation theory: proceedings of the conference held at the Mathematical Research Institute at Oberwolfach, Black Forest, February 4-10, 1979. — Ed. by Walter Schempp and Karl Zeller. — International series of numerical mathematics, vol. 51. — Un vol. broché, 16,5 × 24 de 455 p. — Prix: FS 58.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1979.

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Topics in integral representation theory, by Irving Reiner: Introduction. Local results. Relations between global and local questions. Orders in separable algebras. Swan's theorem. The Grothendieck group G_0. Grothendieck rings of integral group rings. The Whitehead group $K_1(\Lambda)$. — *Integral representations and presentations of finite groups, by Klaus W. Roggenkamp:* Introduction. Group and module extensions. Some remarks on the isomorphismproblem. Relation modules. Presentation rank and the number of generators for the augmentation ideal. Decomposition of augmentation ideals. Decomposition of relation cores. Projective covers for the augmentation ideal. Essential extensions. Homogeneous categories on local modules. An extension of Schur's theory.

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Complex analysis, Joensuu 1978. — Proceedings of the colloquium on complex analysis, Joensuu, Finland, August 24-27, 1978. — Edited by Ilpo Laine, Olli Lehto and Tuomas Sorvali. — Lecture notes in mathematics, vol. 747. — Un vol. broché, 17 × 25, de XV, 450 p. — Prix: DM 42.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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Mikhail S. LIVSHITS and Artem A. YANTSEVICH. — **Operator colligations in Hilbert spaces.** — Translated by the American mathematical society, edited and introduced by Ronald G. Douglas. — Un vol. relié, 15 × 22,5 de XIII, 212 p. — Prix: £12.50. — V. H. Winston & Sons, Washington D.C., 1979 — distributed solely by Halsted press, a division of John Wiley & Sons, Inc.

Induced metrics and operator colligations : Polymetric spaces and inductors. Monometric inductors. Operator colligations. Product of local colligations. — *Differentiation and integration of colligations :* Differentiation of inductors. Differentiation of families of metric colligations. Integration of local colligations. — *The associated open systems :* The equations of open systems. Coupling and decomposition of open systems. General linear systems and their connection with associated open systems. Riemannian geometry and tensor colligations. — *The characteristic operator function :* The characteristic operator function of a vector local colligation. Operator complexes. A theorem on the unitary equivalence of local colligations. Quasi-hermitian colligations. Elementary dissipative complexes. — *Triangular and universal models of linear operators :* Operators of non-hermitian rank one. Operators of arbitrary non-hermitian rank. Complete dissipative operators and complexes. Universal models of complete dissipative complexes. A universal model with spectrum at the origin. The asymptotic stability of some classes of differential equations in Hilbert space. — *Stochastic fields and stochastic processes :* Basic concepts. Homogeneous stochastic fields and stationary stochastic processes. Gaussian stochastic processes. Stochastic open systems. — *Dissipative processes of finite rank :* Dissipative stochastic processes. Complete dissipative processes of rank one. Finite-dimensional dissipative processes of rank one. Complete dissipative processes of finite rank. Dissipative processes of rank one with spectrum at the origin. Dissipative processes of finite rank with spectrum at the origin. — *Spectral resolutions of nonstationary processes :* Complete processes of finite rank. Spectral resolutions of stochastic processes of class C_r. — *Invariant operator colligations :* Auxiliary concepts. Invariance criteria for operator colligations. Product of invariant operator colligations. Indecomposable operators. Preinvariant operator colligations containing a given operator A and bimodule $H\tilde{U}, U$. — *Weyl families of operator colligations and their corresponding open fields :* Basic concepts. Decomposition of an invariant family of colligations. Weyl families of operator colligations. The characteristic operator function of a Weyl family of colligations.

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Alvin E. ROTH. — **Axiomatic models of bargaining.** — Lecture notes in economics and mathematical systems, vol. 170. — Un vol. broché, 16,5 × 24,5 de v, 121 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Nash's model of bargaining : Introduction. The formal model and axiomatic derivation. Probabilistic models. Risk posture. — *Other models of bargaining :* A critical evaluation of the independence properties. Ordinal models of bargaining. Interpersonal models of bargaining. "Irrelevant" alternatives. — *Appendix :* Summary of the principal properties and results.

Klaus NEUMANN, Ulrich STEINHARDT. — **GERT networks and the time-oriented evaluation of projects.** — Lecture notes in economics and mathematical systems, vol. 172. — Un vol. broché, 16,5 × 24,5 de 268 p. — Prix: DM 28.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Basic concepts. — STEOR networks. — GERT networks with basic element structures. — Evaluation of general GERT networks. — Multiple activations of non-STEOR nodes. — GERT networks with time-dependent arc weights. — Simulation. — *Appendix :* Some formulas from probability theory. Stochastic processes. Precise formulation of assumption A3.

Wolf-Dieter HELLER, Henner LINDENBERG, Manfred NUSKE, Karl-Heinz SCHRIEVER. — **Beschreibende Statistik.** — Mit vollständig gelösten Aufgaben. — Studien- und Unterrichtsmaterial zur Lehrerfortbildung, Band 3. — Un vol. broché, 16,5 × 24 de IX, 275 p. — Prix: FS 19.80. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1979.

Eindimensionale Merkmale : Aufgaben. — *Statistische Masszahlen :* Lagemasszahlen. Streuungsmasszahlen. Aufgaben. — *Weitere Masszahlen :* Konzentrationsmessung. Verhältniszahlen. Indexzahlen. Aufgaben. — *Mehrdimensionale Merkmale :* Korrelation. Regression. Aufgaben.

Allen L. EDWARDS. — **Multiple regression and the analysis of variance and covariance.** — A series of books in psychology. — Un vol. broché, 15,5 × 23,5, de XV, 212 p. — Prix: £4.50. — W. H. Freeman and Company, San Francisco, 1979.

The equation of a straight line. — Linear regression and correlation. — Standardized variables and partial and semipartial correlation coefficients. — Multiple regression and correlation. — Matrix calculations for regression coefficients. — Equivalence of the F tests of the null hypotheses $\mu_1 - \mu_2 = 0$, $\rho = 0$, and $\beta = 0$. — Completely randomized designs with one treatment factor. — A completely randomized design with a quantitative treatment factor. — Factorial experiments. — A repeated-measure design. — Split-plot designs. — The analysis of covariance for a completely randomized design. — Non-orthogonal designs: two-factor experiments. — Conditional fixed-effect models. — Answers to selected exercises. — Appendix.

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Topological transformation groups: Basic definitions. Recursion. Relations. The Ellis semigroup. Pointwise almost periodic transformation groups. Distal and equicontinuous transformation groups. — *Minimal transformation groups:* The enveloping semigroup of a minimal transformation group. Almost periodic and locally almost periodic minimal sets. Distal minimal transformation groups. Transitive distal transformation groups and nil-flows. Topological properties of minimal sets. — *Extensions of minimal transformation groups:* The basic theory of extensions. Equicontinuous and stable extensions. The structure of distal and almost distal extensions. Groups associated with minimal extensions. Group extensions. Relationships between group extensions and equicontinuous extensions; a strengthened structure theorem for distal extensions. A method for constructing minimal sets. Disjointness. — *Extensions and equations:* Shift dynamical systems. Extensions associated with certain classes of equations. Almost automorphic extensions and synchronous solutions of differential equations. Extensions with zero-dimensional fibers and almost periodic solutions. Linear extensions of dynamical systems and linear differential equations.

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K. Alladi, M. L. Robinson: On certain irrational values of the logarithm. — *R. C. Baker:* Recent results on fractional parts of polynomials. — *W. Dale Brownawell:* On the development of Gelfond's method. — *G. V. Chudnovsky:* Transcendental numbers. — *H. Cohn:* Diophantine equations over $C(t)$ and complex multiplication. — *G. Cornell:* Abhyankar's lemma and the class group. — *P. Erdös, M. B. Nathanson:* Systems of distinct representatives and minimal bases in additive number theory. — *D. Goldfeld:* Conjectures on elliptic curves over quadratic fields. — *N. Hindman:* Ultrafilters and combinatorial number theory. — *J. Hoffstein:* Some results related to minimal discriminants. — *J. G. Huard:* Cyclic cubic fields that contain an integer of given index. — *H. E. Kasube:* Unique and almost unique factorization. — *W.-C. W. Li:* Hecke-Weil-Jacquet-Langlands theorem revisited. — *J. M. Masley:* Where are number fields with small class number? — *C. J. Moreno:* Künneth formula for L-functions. — *A. D. Pollington:* The Hausdorff dimension of a set of non-normal well approximable numbers. — *H. N. Shapiro:* A combinatorial problem in additive number theory. — *K. B. Stolarsky:* The number of bits in a product of odd integers. — *J. S. Sunley:* Prime discriminants in real quadratic fields of narrow class number one. — *S. S. Wagstaff, Jr.:* Additive h-bases for n. — *M. C. Wunderlich:* A running time analysis of Brillhart's continued fraction factoring method.

Michael BARR. — ***-autonomous categories.** — With an appendix by Po-Hsiang Chu. — Lecture notes in mathematics, vol. 752. — Un vol. broché, 17 × 25, de VI, 140 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Preliminaries: Symmetric closed monoidal categories. — Uniform spaces. Uniform space objects. *-autonomous categories. — *Extensions of structure:* The setting. Extension of the duality. Extension of the internal Hom. — *The category G:* Completeness. Definition and elementary properties of G. The closed monoidal structure on G. Summary of the

hypotheses. — *Examples :* Vector spaces. Dualizing modules. Banach spaces. Modules over a Hopf algebra. Topological abelian groups. Semilattices. — *Appendix :* Constructing *-autonomous categories.

Applications of sheaves. — Proceedings of the research symposium on applications of sheaf theory to logic, algebra and analysis, Durham, July 9-21, 1977. — Ed. by M. P. Fourman, C. J. Mulvey, and D. S. Scott. — Lecture notes in mathematics, vol. 753. — Un vol. broché, 17 × 25, de XIV, 779 p. — Prix: DM 67.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

34 exposés par: J. W. Gray — O. Acuna-Ortega, F. E. J. Linton — B. Banaschewski — J. Beck — S. Breitsprecher — C. W. Burden, C. J. Mulvey — P. M. Cohn — M. Coste — E. J. Dubuc — J. Duskin — M. P. Fourman, J. M. E. Hyland — M. P. Fourman, D. S. Scott — R. J. Grayson — K. H. Hofman, K. Keimel — J. M. E. Hyland — P. T. Johnstone — R. Jozsa — J. F. Kennison, C. S. Ledbetter — A. Kock, G. E. Reyes — R. Lavendhomme, J.-R. Roisin — C. J. Mulvey — G. E. Reyes — G. Reynolds — J.-R. Roisin — C. Rousseau — D. S. Scott — R. A. G. Seely — S. A. Selesnick — G. Takeuti — P. Vamos — G. C. Wraith — A. Zarelua.

Olav Arnfinn LAUDAL. — **Formal moduli of algebraic structures.** — Lecture notes in mathematics, vol. 754. — Un vol. broché, 17 × 25, de III, 161 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Sections of functors : Derivation functors associated to a functor. Obstructions for the existence of sections of functors. Resolving functors for $\varprojlim$. — *Lifting algebras and morphisms of algebras :* Leray spectral sequences for $\varprojlim$. Lifting of algebras. Obstructions for lifting morphisms of algebras. — *Global cohomology :* Definitions and some spectral sequences. Algebra cohomology of schemes and morphisms of schemes. Long exact sequence associated to a morphism of S-schemes. — *Global obstruction theory and formal moduli :* Global obstruction theory. Formal moduli. The obstruction morphism and Massey products. — *Some applications :* Local structure of some moduli-schemes. Formal moduli of k-schemes and local structure of the Hilbert scheme. Local k-algebras, cohomology and Massey products.

Global analysis. — Proceedings of the biennial seminar of the Canadian mathematical congress, Calgary, Alberta, June 12-27, 1978. — Edited by M. Grmela and J. E. Marsden. — Lecture notes in mathematics, vol. 755. — Un vol. broché, 17 × 25, de VII, 377 p. — Prix: DM 35.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

M. Adler : On a trace functional for formal pseudo-differential operators and the Hamiltonian structure of Korteweg-DeVries type equations. — *A. M. Berthier :* A remark on a generalized uncertainty principle. — *M. Grmela :* Dissipative dynamical systems of macroscopic physics. — *E. N. Lorenz :* On the prevalence of aperiodicity in simple systems. — *J. E. Marsden :* On the geometry of the Liapunov-Schmidt procedure. — *H. P. McKean :* Integrable systems and algebraic curves. — *A. Menikoff and J. Sjostrand :* On the eigenvalues of a class of hypoelliptic operators II. — *T. Ratiu :* On the smoothness of the time t-map of the *KdV* equation and the bifurcation of the eigenvalues of Hill's operator. — *J. H. Rawnsley :* Self-dual Yang-Mills fields. — *P. van Moerbeke :* About isospectral deformations of discrete Laplacians. — *Y. H. Wan :* Bifurcations of periodic orbits in autonomous systems.

Richard L. EPSTEIN. — **Degrees of unsolvability: structure and theory.** — Lecture notes in mathematics, vol. 759. — Prix: DM 28.50. — Un vol. broché, 17 × 25, de XIV, 240 p. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

An introduction: An introduction to degrees of unsolvability. The undecidability of the theory of degrees. — *Distributive initial segments of* $\mathbf{D}$: $\overset{*}{\Rightarrow} \mathbf{D}$. Various finite distributive lattices $\overset{*}{\Rightarrow} \mathbf{D}$. Finite distributive lattices $\overset{*}{\Rightarrow} \mathbf{D}$. Linear orderings $\overset{*}{\Rightarrow} \mathbf{D}$. Countable distributive lattices $\overset{*}{\Rightarrow} \mathbf{D}$. Relativizing, a tree of trees, the jump operator. — *The theory of degrees:* The homogeneity questions. Degree theory and analysis. — *The degrees* $\leqslant 0'$*:* An introduction to degrees $\leqslant 0'$. The undecidability of the theory of degrees $\leqslant \underline{0}'$. — *Appendices:* Lattice theory. *n-r.e.* degrees. Limitations on tree constructions.

Homological group theory. — Proceedings of a symposium held at Durham in September 1977, on "homological and combinatorial techniques in group theory". — Supported by the Science research council, organised by the London mathematical society. — Edited by C. T. C. Wall. — London mathematical society lecture note series, vol. 36. — Un vol. broché, 15,5 × 23, de IX, 394 p. — Prix: £16.00. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1979.

Hyman Bass: Traces and Euler characteristics. — *Kenneth S. Brown:* Groups of virtually finite dimension. — *K. W. Gruenberg:* Free abelianised extensions of finite groups. — *J.-P. Serre:* Arithmetic groups. — *Peter Scott and Terry Wall:* Topological methods in group theory. — *Herbert Abels:* An example of a finite presented solvable group. — *Helmut Behr:* $SL_3(\mathbf{F}_q[t])$ is not finitely presentable. — *Robert Bieri and Beno Eckmann:* Two-dimensional Poincaré duality groups and pairs. — *Robert Bieri and Ralph Strebel:* Metabelian quotients of finitely presented soluble groups are finitely presented. — *Robert Bieri and Ralph Strebel:* Soluble groups with coherent group rings. — *Peter J. Cameron:* Cohomological aspects of 2 graphs, II. — *M. J. Dunwoody:* Recognizing free factors. — *Michael Dyer:* Trees of homotopy of (π, m)-complexes. — *W. J. Harvey:* Geometric structure of surface mapping class groups. — *Johannes Huebschmann:* Cohomology theory of aspherical groups and of small cancellation groups. — *D. L. Johnson and E. F. Robertson:* Finite groups of deficiency zero. — *Wolfgang Metzler:* Äquivalenzklassen von Gruppenbeschreibungen, Identitäten und einfacher Homotopietyp in niederen Dimensionen. — *Wolfgang Metzler:* Two-dimensional complexes with torsion values not realizable by self-equivalences. — *Gerhard Rosenberger:* Applications of Nielsen's reduction method to the solution of combinatorial problems in group theory: a survey. — *Christophe Soulé:* Chevalley groups over polynomial rings. — List of problems edited by Terry Wall.

Logic colloquium '78. — Proceedings of the colloquium held in Mons, August 1978. — Edited by Maurice Boffa, Dirk van Dalen, Kenneth McAloon. — Studies in logic and the foundations of mathematics, vol. 97. — Un vol. relié, 16 × 23, de X, 434 p. — Prix: Dfl 120.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1979.

M. Beeson: Continuity in intuitionistic set theories. — *G. Cherlin:* Stable algebraic theories. — *R. David:* Un résultat de non contradiction relative au sujet de la conjecture de Solevay. — *O. Demuth and A. Kucera:* Remarks on constructive mathematical analysis. — *J. Denef:* The diophantine problem for polynomial rings of positive characteristic. — *L. Van den Dries:* Algorithms and bounds for polynomial rings. — *S. Feferman:* Con-

structive theories of functions and classes. — *P. Hajek :* On partially conservative extensions of arithmetic. — *A. Hajnal and I. Juhasz :* Weakly separated subspaces and networks. — *L. Harrington and R. Sami :* Equivalence relations, projective and beyond. — *G. F. Van der Hoeven and A. S. Troelstra :* Projections of lawless sequences II. — *R. Laver :* Linear order in $(\omega)^\omega$ under eventual dominance. — *W. Mitchell :* Hypermeasurable cardinals. — *Z. Ratajczyk :* On the number of expansions of the model of *ZFC*-set theory to models of *KM*-theory of classes. — *U. R. Schmerl :* A fine structure generated by reflection formulas over primitive recursive arithmetic. — *H. Schwichtenberg :* Logic and the axiom of choice. — *S. Shelah :* On the successors of singular cardinals. — *E. Specker :* Paul Bernays. — *J. Väänänen :* Abstract logic and set theory, I: definability. — *V. Weispfenning :* Lattice products. — *B. Weglorz :* Some σ-fields of subsets of reals.

Wiktor ECKHAUS. — **Asymptotic analysis of singular perturbations.** — Studies in mathematics and its applications, vol. 9. — Un vol. relié, 16 × 23, de XI, 287 p. — Prix: Dfl 100.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1979.

Asymptotic definitions and properties : Order symbols, sharp estimates and order functions. Asymptotic sequences and asymptotic series. Orders of magnitude. Asymptotic approximations and asymptotic expansions. Regular approximations and regular expansions. Gauge functions, gauge sets and the uniqueness of regular expansions. — *Functions with singularities on subsets of lower dimension (boundary layers) :* Qualitative description of singular behaviour. Regularity in subdomains, extension theorems. Local analysis of continuous functions; local limit functions and local expansions. The formalism of expansion operators. — *Matching relations and composite expansions :* Significant approximations and boundary layer variables. Further applications of the extension theorems; the overlap hypothesis. Matching in the intermediate variables and uniform approximations on the basis of the overlap hypothesis. Overlap hypothesis and intermediate matching in the case more general local expansions. Correction layers and composite expansions; an asymptotic matching principle. Composite expansions and an asymptotic matching principle from the hypothesis of regularizing layer. Asymptotic matching principles and composite expansions from the overlap hypothesis. Validity of asymptotic matching principle without overlap. — *Heuristic analysis of singular perturbations : linear problems :* Degenerations of linear differential operators. The differential equations for the first term of the regular and the local expansions. Recurrence relations for regular and local expansions. The correspondence principle. Further development of the heuristic analysis: some one-dimensional problems. Heuristic analysis continued: some two-dimensional problems. The concept of formal approximations. Expansions with a regularizing factor: the *WKB* approximation. Expansion by the method of multiple scales. — *Heuristic analysis continued: non-linear problems :* Degenerations of non-linear operators. The differential equations for the first terms of the regular and the local expansions. The differential equations for the higher order terms of the expansions. Analysis of some one-dimensional problems. Significant degenerations and the correspondence principle reconsidered. Some one-dimensional problems exhibiting strong non-linear effects. Some elliptic second order problems in R^2. Remarks on the formal approximations in non-linear problems. — *Foundations for a rigorous theory of singular perturbations :* General introductory considerations. Estimates for linear problems. Non-linear problems. — *Elliptic singular perturbations :* Linear operators of second order. Elementary boundary layers. Linear operators of second order continued. Refined analysis of boundary layers. Non-linear operators of second order. Linear operators of higher order.

Saharon SHELAH. — **Classification theory and the number of non-isomorphic models.** — Studies in logic and the foundations of mathematics, vol. 92. — Un vol. relié, 16,5 × 23, de XVI, 544 p. — Prix: Dfl 140.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1978.

Preliminaries: Preliminaries and saturation. Order, stability and indiscernibles. — *Ranks and incomplete types:* Ranks of types. Stability, ranks and definability. Ranks, degrees and superstability. The *f.c.p.*, the independence property and the strict order property. — *Global theory:* Forking. The finite equivalence relation theorem. The instability spectrum. Further properties of forking. The first stability cardinal. Imaginary elements. Instability. — *Prime models:* The set of axioms. Examples of F's. General properties of F-primary models. Prime models for stable theories. Various results. — *More on types and saturated models:* Orthogonality, regularity and minimality of types. Dimensions and orders between indiscernible sets. Weighted dimensions and superstability. Semi-regular and semi-minimal types. Multi-dimensional theories. Cardinality quantifiers and two-cardinal theorems. Ranks revisited. — *Saturation of ultraproducts:* Reduced products and regular filters. Good filters and compactness of reduced products. Constructing ultrafilters. Keisler's order. Saturation of ultrapowers and categoricity of pseudo-elementary classes. Saturation of ultralimits. — *Construction of models:* Skolem functions and generalizations of saturativity. Generalized Ehrenfeucht-Mostowski models. On the *f.c.p.*, uniform trees and $|D(T)| > |T| = \aleph_0$. Semi-definability. Hanf numbers of omitting types. — *The number of non-isomorphic models in pseudo-elementary classes:* Independence of types. Unsuperstable theories. Saturated models and the case $\lambda = |T_1|$. Categoricity, saturation and homogeneity up to a cardinality. — *Categoricity and the number of models in elementary classes:* Superstable theories and categoricity. On the lower parts of the spectrum. — *Appendix:* Filter, stationary sets and families of sets. Partition theorems. Various results.

Martin AIGNER. — **Combinatorial theory.** — Grundlehren der mathematischen Wissenschaften, vol. 234. — Un vol. relié, 17 × 24,5, de VIII, 483 p. — Prix: DM 79.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Preliminaries: Sets. Graphs. Posets. Miscellaneous notation. — *Mappings:* Classes of mappings. Fundamental orders. Permutations. Patterns. — *Lattices:* Distributive lattices. Modular and semimodular lattices. Geometric lattices. The fundamental examples. — *Counting functions:* The elementary counting coefficients. Recursion and inversion. Binomial sequences. Order functions. — *Incidence functions:* The incidence algebra. Möbius inversion. The Möbius function. Valuations. — *Generating functions:* Ordered structures. Unordered structures. G-patterns. G, H-patterns. — *Matroids: introduction:* Fundamental concepts. Fundamental examples. Construction of matroids. Duality and connectivity. — *Matroids: further theory:* Linear matroids. Binary matroids. Graphic matroids. Transversal matroids. — *Combinatorial order theory:* Maximum-minimum theorems. Transversal theorems. Sperner theorems. Ramsey theorems.

Hyperbolic complex analysis. — Proceedings of a Seminar held at the Ramanujan Institute from March 28, 1977 to April 7, 1977. — Edited by D. Sundararaman. — Publications of the Ramanujan Institute, n° 4. — Un vol. broché, 18,5 × 24,5, de VIII, 222 p. — Ramanujan Institute for advanced study in mathematics, University of Madras, Madras, 1979.

K. A. Narayanan and K. S. Padmanabhan : A brief introduction to Nevanlinna theory of meromorphic functions. — *K. Venkatachal Iengar :* Elliptic modular functions and Picard's theorem. — *R. R. Simha :* Extension theorems in hyperbolic analysis. — *M. Sitaramayya :* Hyperbolic complex manifolds. — *D. Sundararaman :* Value distribution in several complex variables. — *Victor Anandam :* An invitation to plurisubharmonic functions. — *Ramabhadran Narasimhan :* Domains of holomorphy and pseudoconvex domains. — *P. Pflug :* Holomorphic functions of polynomial growth and applications. — *M. Ganesh :* Projective structures on compact complex manifolds. — *J. Gopala Krishna :* Power series in one or several complex variables with independent random coefficients. — *P. Pflug :* Silov boundaries of smooth pseudoconvex domains. — *Nirmala Prakash :* Sectional curvatures of arbitrary order and isometry in complex manifolds. — *M. Sitaramayya :* Differential geometric study of a class of hypersurfaces in a complex torus.

William C. WATERHOUSE. — **Introduction to affine group schemes.** — Graduate texts in mathematics, vol. 66. — Un vol. relié, 16 × 24, de XI, 164 p. — Prix: DM 39.50. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

The basic subject matter : Affine group schemes. Affine group schemes: examples. Representations. Algebraic matrix groups. — *Decomposition theorems :* Irreducible and connected components. Connected components and separable algebras. Groups of multiplicative type. Unipotent groups. Jordan decomposition. Nilpotent and solvable groups. — *The infinitesimal theory :* Differentials. Lie algebras. — *Faithful flatness and quotients :* Faithful flatness. Faithful flatness of Hopf algebras. Quotient maps. Construction of quotients. — *Descent theory :* Descent theory formalism. Descent theory computations. — *Appendix :* Subsidiary information.

R. E. EDWARDS. — **Fourier series: a modern introduction. Vol. 1.** — Second edition. — Graduate texts in mathematics, vol. 64. — Un vol. relié, 16 × 24, de XII, 224 p. — Prix: DM 34.00. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

Trigonometric series and Fourier series. — Group structure and Fourier series. — Convolutions of functions. — Homomorphisms of convolution algebras. — The Dirichlet and Fejér kernels. Cesaro summability. — Cesaro summability of Fourier series and its consequences. — Some special series and their applications. — Fourier series in L^2. — Positive definite functions and Bochner's theorem. — Pointwise convergence of Fourier series. — *Appendices :* Metric spaces and Baire's theorem. Concerning topological linear spaces. The dual of L^p $(1 \leqslant p < \infty)$; weak sequential completeness of L^1. A weak form of Runge's theorem.

I. I. GIHMAN A. V. SKOROHOD. — **Controlled stochastic processes.** — Translated by Samuel Kotz. — Un vol. relié, 16 × 24, de VII, 237 p. — Prix: DM 64.00. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

Discrete-parameter controlled stochastic processes : Definitions. Optimization problem. Construction of optimal and ε-optimal controls. Control of processes with incomplete observations. Optimal stopping problems. Controlled Markov chains. Homogeneous controlled Markov chains. Optimal stopping of Markov chains. — *Continuous-time control processes :* General definitions. Representation of the controlled objects and construction of controlled processes. Optimization problem; approximation theorem. Controlled Markov processes. Jump Markovian controlled processes. — *Controlled*

stochastic differential equations: Some preliminaries. Stochastic differential equations. Controlled stochastic differential equations. Evolutional loss functions. Linear systems without an after-effect. Control equations with continuous noise. Controlled diffusion processes.

Richard M. MEYER. — **Essential mathematics for applied fields.** — Universitext. — Un vol. broché, 15,5 × 23,5, de XVI, 555 p. — Prix: DM 34.00. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

Sets, sequences, series, and functions. — Doubly infinite sequences and series. — Sequences and series of functions. — Real power series. — Behavior of a function near a point: various types of limits. — Orders of magnitude: the O, o, $\sim$ notation.— Some abelian and Tauberian theorems. — 1-dimensional cumulative distribution functions and bounded variation functions. — 1-dimensional Riemann-Stieltjes integral.— n-dimensional cumulative distribution functions and bounded variation functions. — n-dimensional Riemann-Stieltjes integral. — Finite differences and difference equations. — Complex variables. — Matrices and determinants. — Vectors and vector spaces. — Systems of linear equations and generalized inverse. — Characteristic roots and related topics. — Convex sets and convex functions. — Max-min problems. — Some basic inequalities.

Charles E. RICKART. — **Natural function algebras.** — Universitext. — Un vol. broché, 15,5 × 23,5, de XIII, 240 p. — Prix: DM 29.50. — Springer Verlag, New York/Heidelberg/Berlin, 1979.

The category of pairs. — Convexity and naturality. — The Silov boundary and local maximum principle. — Holomorphic functions. — Maximum properties of holomorphic functions. — Subharmonic functions. — Varieties. — Holomorphic and subharmonic convexity. — $[\Sigma, \mathfrak{A}]$-domains. — Holomorphy theory for dual pairs of vector spaces. — $< E, F >$-domains of holomorphy. — Dual pair theory applied to $[\Sigma, \mathfrak{A}]$-domains. — Holomorphic extensions of Δ-domains.

Saunders MacLANE, Garrett BIRKHOFF. — **Algebra.** — 2d edition. Un vol. broché, 16 × 23, de XV, 586 p. — Prix: US$ 13.95. — Macmillan Publishing Co., Inc., New York/Collier Macmillan Publishers, London, 1979.

Sets, functions, and integers. — Groups. — Rings. — Universal constructions. — Modules. — Vector spaces. — Matrices. — Special fields. — Determinants and tensor products. — Bilinear and quadratic forms. — Similar matrices and finite abelian groups. — Structure of groups. — Galois theory. — Lattices. — Categories and adjoint functors. — Multilinear algebra.

C. Ray WYLIE. — **Differential equations.** — Un vol. relié, 17 × 24,5 de XIII, 593 p. — Prix: DM 49.30. — McGraw-Hill Book Company, New York/St. Louis/San Francisco/Auckland/Bogota/Düsseldorf/... Toronto, 1979.

Ordinary differential equations of the first order. — Applications of first-order differential equations. — The basic theory of linear differential equations. — Linear differential equations with constant coefficients. — Simultaneous linear differential equations. — The Laplace transformation. — Mechanical systems and electrical circuits. —

Fourier series. — Series solutions of linear differential equations. — Further theory of linear differential equations. — Partial differential equations. — The numerical solution of differential equations. — Linear difference equations. — The descriptive theory of non-linear differential equations. — *Appendix A :* The fundamental existence theorem. — *Appendix B :* Reference material from algebra, analysis, and applied mathematics.

R. F. HOSKINS. — **Generalised functions.** — Ellis Horwood series in mathematics and its applications. — Un vol. relié, 15,5 × 23,5 de 192 p. — Prix: £15.00. — Ellis Horwood Limited Publishers, Chichester (distributed by Halsted Press, a division of John Wiley and Sons, New York/Chichester/Brisbane/Toronto,) 1979.

Results from elementary analysis. — The delta function. — Properties of the delta function and its derivatives. — Time-invariant linear systems and generalised functions. — The Laplace transform. — Fourier series and Fourier transforms. — Other types of generalised function. — Generalised functions and integration theory.

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Preface. — Bibliography of Oscar Zariski. — Introduction by J. Lipman and B. Teissier. — *Reprints of papers :* Equisingular points on algebraic varieties. — Studies in equisingularity I. Equivalent singularities of plane algebroid curves. — Studies in equisingularity II. Equisingularity in codimension 1 (and characteristic zero). — Studies in equisingularity III. Saturation of local rings and equisingularity. — Contributions to the problem of equisingularity. — Some open questions in the theory of singularity. — General theory of saturation and of saturated local rings I. Saturation of complete local domains of dimension one having arbitrary coefficient fields (of characteristic zero). — General theory of saturation and of saturated local rings II. Saturated local rings of dimension 1. — Quatre exposés sur la saturation. — General theory of saturation and of saturated local rings III. Saturation in arbitrary dimension and, in particular, saturation of algebroid hypersurfaces. — On equimultiple subvarieties of algebroid hypersurfaces. — The elusive concept of equisingularity and related questions. — A new proof of the total embedded resolution theorem for algebraic surfaces (based on the theory of quasi-ordinary singularities). — Foundations of a general theory of equisingularity on r-dimensional algebroid and algebraic varieties, of embedding dimension $r + 1$. — Abstract of the paper "Foundations of a general theory of equisingularity on r-dimensional algebroid and algebraic varieties, of embedding dimension $r + 1$".

Hermann SCHUBERT. — **Kalkül der abzählenden Geometrie.** — Reprint. — Un vol. relié, 16,5 × 24, de VII, 349 p. — Prix: DM 62.00. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

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verbeke — C. Domanski, A. Tomaszewicz — A. H. El-Shaarawi — Ch. A. Field — Z. Govindarajulu, M. Dwass — W. Grosmann — T. Havranek — R. Helmers — J. Hurt — J. Jureckova — Ch. A. J. Klaassen — L. B. Klebanov, I. A. Melamed — H. S. Konijn — P. Mandl — P. Neumann — G. Ch. Pflug — J. Stepan — J. A. Visek — K. Winkelbauer.

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C. NASTASESCU, F. VAN OYSTAEYEN. — **Graded and filtered rings and modules.** — Lecture notes in mathematics, vol. 758. — Un vol. broché, 17 × 25, de X, 148 p. — Prix: DM 21.50. — Springer Verlag, Berlin/Heidelberg/New York, 1979.

Filtered rings and modules: Preliminaries. The category of filtered modules. Graded rings and modules. Filtration and associated gradation. Free, projective and finitely generated objects of R-filt. The functor $HOM_R(-,-)$. Projective modules and homological dimension of rings. Weak (flat) dimension of filtered modules. — *Topics in graded ring theory:* Homogenization. The structure of principal graded rings. Noetherian objects. The Krull dimension of some classes of rings. Krull dimension of graded rings. Graded division rings. The structure of simple objects in R-*gr*. The Jacobson radical of graded rings. Semisimple graded rings. Goldie's theorems for graded rings. Primary decompositions. External homogenization. Graded rings and modules of quotients. Graded prime ideals and the Ore condition. The presheaves on proj R. Graded Zariski central rings. Scheme structure of proj over a graded Zariski central ring. — *Local conditions for Noetherian graded rings:* Injective dimension of graded rings. Regular, Gorenstein and Cohen-Macaulay rings. Graded rings and M-sequences.

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Basic concepts : The discrete model. The continuous model. — *Equilibrium states for systems of moving particles :* Particle motions in the discrete model. Particle motions in the continuous model. — *Spatially homogeneous models :* The variational principle. The free energy as a function of time. — *Independent models :* The discrete case. The continuous case. — *Discrete models with interaction :* Formulation of results. Conditional probabilities and the activity function. Estimating the activity function. — *Continuous models with interaction :* Formulation of results. Conditional densities and the activity functions. Estimating the activity functions. — *Some further results on homogeneous models :* Properties of the activity function. The equivalence of ensembles.

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Review of results on algebraic groups. — Classification of tori. — Principal series representations. — Discrete series representations and Harish-Chandra theory. — The l-adic cohomology : Sheaves. Schemes. Etale cohomology. Properties of l-adic cohomology with compact support. — *The construction of Lusztig-Deligne. — Characters. — Classification of representations :* Representations of $GL(n, q)$ and $U(n, q)$. Centralizer algebras. Representations of classical groups. Exceptional groups.

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Mathematical aspects of Padé approximants and their generalizations : 9 exposés par: J. S. R. Chisholm et A. K. Common, F. Cordelier, A. Cuyt, J. Della Dora et C. Di-Crescenzo, B. Germain-Bonne, J. Gilewicz, A. Magnus, H. Van Rossum. — *Computation of Padé approximants and related topics :* 5 exposés par: C. Brezinski, A. Bultheel, P. R. Graves-Morris, J. R. Roche, H. Werner. — *Applications of Padé approximation :* 4 exposés par: T. Clarysse, Y. L. Luke, M. Pindor, A. Wambecq. — *Bibliographies : C. Brezinski :* Recent references on sequences and series transformations. *L. Wuytack :* Commented bibliography on techniques for computing Padé approximants.

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Review of the deformation theory of compact complex manifolds. — Structure of $\mathrm{Hol}(V, \mathbf{P}^1)$. — $R_n(V)$ for $n \leqslant g$. — Families of holomorphic maps of compact complex manifolds. — Families of effective divisors and linear systems on projective manifolds. — Families of linear systems on compact Riemann surfaces.

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Approximate identities in normed algebras: Approximate identities. One-sided and two-sided. Renorming. Banach algebras with sequential approximate identities. Banach algebras with nonsequential approximate identities. Normed algebras with sequential approximate identities. Quotients. Tensor products. Approximate units. Topological zero divisors. Topologically nilpotent elements. C^*-algebras. Group algebras. — *Factorization in Banach modules:* Banach modules. Essential Banach modules. Factorization. Multiple factorization. Power factorization. Factorization and semigroups. Analytic factorization I. Analytic factorization II. Factorable Banach algebras without approximate units. Nonfactorization. Fréchet modules. Essential Fréchet modules. Factorization in Fréchet modules. — *More about approximate identities:* Local versus global. Well-behaved approximate identities. Quasicentral approximate identities. Compact operators. Abstract Segal algebras. Sums of subspaces. Weak approximate identities and Arens products. A theorem on continuous bilinear mappings. A majorization theorem for C^*-algebras. Approximate diagonals.

Hilary PUTNAM. — **Mind, language and reality.** — Philosophical papers, vol. 2. — Un vol. broché, 15,5 × 23, de XVII, 457 p. — Prix: £5.50. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1979.

Language and philosophy. — The analytic and the synthetic. — Do true assertions correspond to reality? — Some issues in the theory of grammar. — The "innateness hypothesis" and explanatory models in linguistics. — How not to talk about meaning. — Review of "*The concept of a person*". — Is semantics possible? — The refutation of conventionalism. — Reply to Gerald Massey. — Explanation and reference. — The meaning of "meaning". — Language and reality. — Philosophy and our mental life. — Dreaming and "depth grammar". — Brains and behavior. — Other minds. — Minds and machines. — Robots: machines or artificially created life? — The mental life of some machines. — The nature of mental states. — Logical positivism and the philosophy of mind.

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T. M. FLETT. — **Differential analysis: differentiation, differential equations and differential inequalities.** — Un vol. relié, 16 × 24, de VI, 359 p. — Prix: £18.00. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1980.

Differentiation of functions of one real variable: The derivative of a real- or vector-valued function of a real variable. Tangents to paths. The mean value theorems of Rolle, Lagrange, and Cauchy. Monotonicity theorems and an increment inequality. Applications of the increment inequality to differential equations and to a differential inequality. Increment and mean value inequalities for vector-valued functions. Applications of the increment and mean value theorems. Derivatives of second and higher orders; Taylor's theorem. Regulated functions and integration. Further monotonicity theorems and increment inequalities. Historical notes on the classical mean value theorems, monotonicity theorems and increment inequalities. — *Ordinary differential equations:* Definitions. Preliminary results. Approximate solutions. Existence theorems for $y' = f(t, y)$ when Y is finite-dimensional. Some global existence theorems and other comparison theorems. Peano's linear differential inequality and the integral inequalities of Gronwall and Bellman. Lipschitz conditions. Linear equations. Linear equations with constant coefficients. Dependence on initial conditions and parameters. Further existence and uniqueness theorems. Successive approximations. An existence theorem for a discontinuous function. Historical notes on existence and uniqueness theorems for differential equations and on differential and integral inequalities. — *The Fréchet differential:* The Fréchet differential of a function. Mean value inequalities for Fréchet differentiable functions. The partial Fréchet differentials of a function with domain in a product space. The partial derivatives of a function with domain in $\mathbf{R}^n$. Fréchet differentials of higher order. Taylor's theorem for Fréchet differentiable functions. The inverse function theorem. The implicit function theorem. Examples of Fréchet differentiable functions. Higher order differentiability of solutions of differential equations: differentiability with respect to the initial conditions and parameters. Applications of Fréchet differentiation to the calculus of variations. Newton's method for the solution of the equation $f(x) = 0$. — *The Gâteaux and Hadamard variations and differentials:* The Gâteaux variation and the Gâteaux differential. The Hadamard variation and the Hadamard differential. The tangent cones to the graph and the level surfaces of a function. Constrained maxima and minima (equality constraints). Constrained maxima and minima (inequality constraints). Theorems of Lyapunov type for differential equations. Historical note on differentials. — *Appendix.*

Silvio GRECO. — **Normal varieties.** — Notes written with the collaboration of A. Di Sante. — Istituto nazionale di alta matematica, Institutiones mathematicae, vol. 4. — Un vol. broché, 17 × 24, de 72 p. — Prix: $18.50. — Academic Press, London/New York, 1978.

Preliminaries: Affine algebraic sets and varieties. Rational functions. Morphisms of affine varieties. Projective varieties. — *Normal varieties:* Normal rings and normal varieties. The structure theorem for normal rings and varieties. Normality and finite morphisms. — *Depth and property S_2:* Regular sequences. Regular sequences and dimension. Complete intersections. The grade of an ideal. Depth of a local ring. Property S_2. Normality and property S_2. Property S_2 and extensions of rational functions. The connectedness theorem of Hartshorne. — *Simple subvarieties and property R_n:* Tangent cones and graded rings. Simple points and regular local rings. Normality and tangent cones. Regularity in codimension n and property R_n. The normality criterion of Krull-Serre. An application: double curves on a surface. — *Normalization:* Normalization of an integral variety. The conductor. The normalization of an affine reduced variety. The prime ideals associated with the conductor. — *Analytic normality and applications:* Analytic normality. Analytic branches. Unibranch points and a theorem of D. Ferrand. The Zariski main theorem. — *Arithmetic normality:* The method of the associated affine

cone. Normal and arithmetically normal projective varieties. Normalization of a projective variety. The Veronese embeddings of a normal projective variety. — *Arithmetic normality and linear series :* Divisors. The fundamental theorem. Proof of the fundamental theorem. Factorial projective varieties.

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A. R. MITCHELL and D. F. GRIFFITHS. — **The finite difference method in partial differential equations.** — Un vol. relié, 16 × 24, de XII, 272 p. — Prix: £8.95. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1980.

Basic linear algebra: Notation. Definitions. Linear vector space. Useful matrix properties. Vector and matrix norms. Theorems relating matrix norm to spectral radius. Convergence of sequences of matrices. — *Parabolic equations:* Parabolic equations in one space dimension. Derivation of an exact difference formula. Explicit formulae. Implicit formulae. Solution of tridiagonal systems. Convergence. Stability. Derivative boundary conditions. Parabolic equations in two space dimensions. Explicit methods. Stability of explicit methods. Alternating direction implicit (A.D.I.) methods. Locally one-dimensional (L.O.D.) methods. Hopscotch methods. Mixed space derivative. Parabolic equations in three space dimensions. Explicit methods. Implicit methods. Three-level difference schemes. Explicit schemes. Implicit schemes. Non-linear equations. — *Elliptic equations:* Elliptic equations in two dimensions. Laplace's equation in a square. The Neumann problem. Mixed boundary conditions. Non-rectangular regions. Self-adjoint elliptic equations. Alternative methods for constructing difference formulae. General properties of difference formulae. Mixed partial derivatives. The biharmonic equation. The solution of elliptic difference equations. Direct factorization methods. Successive overrelaxation (S.O.R.). A.D.I. methods. Conjugate gradient and related methods. Eigenvalue problems. — *Hyperbolic equations:* First-order hyperbolic equations. Explicit difference formulae. Implicit difference formulae. First-order hyperbolic systems in one space dimension. Systems of conservation laws. First-order hyperbolic systems in two space dimensions. Conservation laws in two space dimensions. Dissipation and dispersion. Stability of initial boundary value problems. Non-linear instability. Second-order equations in one space dimension. Second-order equations in two space dimension. — *The Galerkin method:* Elliptic equations. Two-point boundary value problems. The Galerkin method with different test and trial functions. Two space variables. Semi-discrete Galerkin methods. Discretization in time. Non-linear problems. — *Applications:* Re-entrant corners and boundary singularities. Incompressible viscous flow. Inviscid compressible flow. Other flows. Shallow water equations. Free and moving boundary problems. Error growth in conduction-convection problems.

Colloquium [on the] numerical treatment of integral equations. — Ed. by H. J. J. te Riele. — MC syllabus 41. — Un vol. broché, 16 × 24, de VII, 259 p. — Prix: Dfl 31.00. — Mathematisch centrum, Amsterdam, 1979.

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21 exposés par: J. M. Aarts & J. deVries — M. G. Bell — H. L. Bentley & H. Herrlich — F. J.-B. J. Clauwens — D. W. Curtis — E. K. van Douwen — A. Emeryk, R. Frankiewicz & W. Kulpa — W. T. van Est — J. Flaschsmeyer — A. Gutek — H. Hendriks & A. R. Shastri — D. N. Holtzman — M. Husek — M. Husek, J. van Mill & C. F. Mills — W. Kulpa — E. Michael — J. van Mill — J. van Mill & M. van de Vel — J. van Mill & J. Vermeer — C. F. Mills.

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