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autonome, ce cours intègre également des chapitres traitant de questions d'analyse et de topologie. Les résultats sont tous accompagnés de leurs démonstrations, sauf pour quelques points de la théorie des ensembles, faisant de cet ouvrage un outil de travail efficace pour la présentation au concours de l'agrégation de mathématiques. Ce livre peut être utilisé avec profit par les étudiants de licence ou de maîtrise de mathématiques.

Dina TIROSH, (Editor). — **Forms of mathematical knowledge: learning and teaching with understanding.** — Un vol. relié, 16,5×25, de 252 p. — ISBN 0-7923-5995-X. — Prix: Dfl. 190.00. — Kluwer, Dordrecht, 1999.

This book focuses on various types of knowledge that are significant for learning and teaching mathematics. Its first part defines, discusses and contrasts psychological, philosophical and didactical issues related to various types of knowledge involved in the learning of mathematics. Its second part describes ideas about forms of mathematical knowledge that are important for teachers to know and ways of implementing such ideas in preservice and inservice education. The chapters provide a wide overview of current thinking about mathematics learning and teaching which is of interest for researchers in mathematics education and mathematics educators.

Joseph L. WALSH. — **Joseph L. Walsh: selected papers.** — Theodore J. RIVLIN, Edward B. SAFF, (Editors). — Un vol. relié, 16×24, de xxv, 682 p. — ISBN 0-387-98782-7. — Prix: DM 249.00. — Springer, New York, 2000.

*From the preface:* In this volume we present a selection from 281 published papers of Joseph Leonard Walsh (1895-1973), a complete list of which appears after this preface. ... The selected papers have been divided into seven broad sections. The sections are ordered following the evolution of Walsh's work. Appended to these sections are commentaries on Walsh's work and a discussion of subsequent developments influenced by the work. ... One of Walsh's papers has attained an unpredictably remarkable afterlife. The work referred to is "A closed set of normal orthogonal functions", *Amer. J. Math.*, vol. 45, 1923, pp. 5-24, which introduced what are known as "Walsh functions". There exists an immense literature about the theory and applications of these orthogonal functions.

## ***Histoire***

Jeremy GRAY, (Editor). — **The symbolic universe: geometry and physics, 1890-1930.** — Un vol. relié, 16,5×24, de xii, 289 p. — ISBN 0-19-850088-2. — Prix: £55.00. — Oxford University Press, Oxford, 1999.

With the development of the theory of relativity by Albert Einstein, physics underwent a revolution at the end of the nineteenth century. The boundaries of research were extended still further when in 1907-1908 Minkowski applied geometrical ideas to this area of physics. This in turn opened the door to other researchers seeking to use non-Euclidean geometrical methods in relativity, and many notable mathematicians did so, Weyl in particular linking these ideas with broader philosophical issues in mathematics. This volume provides a wide-ranging and detailed survey of this exciting era.

Shen KANGSHEN, John N. CROSSLEY, Anthony W.-C. LUN, (Editors and translators). — **The Nine Chapters on the Mathematical Art: companion and commentary.** — Un vol. relié, 16×24, de xiv, 596 p. — ISBN 0-19-853936-3. — Prix: £110.00. — Oxford University Press, Oxford, and Science Press, Beijing, 1999.

The Nine Chapters on the Mathematical Art is a classic text: the most important mathematical source in China during the past 2000 years, and comparable in significance to Euclid's

Elements in the West. This volume contains the first complete English translation of the Nine Chapters, together with two commentaries written in the 3<sup>rd</sup> century (by Liu Hui) and 7<sup>th</sup> century AD, and a further commentary by the translators. The Nine Chapters contains 246 problems and their solutions which fall into nine categories that are firmly based on practical needs. There are methods for solving problems in areas such as land measurement, construction, agriculture, commerce, and taxation.

## *Logique et fondements*

Marat M. ARSLANOV, Steffen LEMPP, (Editors). — **Recursion theory and complexity.** — Proceedings of the Kazan '97 Workshop, Kazan, Russia, July 14-19, 1997. — De Gruyter series in logic and its applications, vol. 2. — Un vol. relié, 17,5×24,5, de VIII, 239 p. — ISBN 3-11-016587-2. — Prix: DM 228.00. — Walter de Gruyter, Berlin, 1999.

Recursion theory, the study of computability, is an area of mathematical logic that has traditionally been particularly strong in the United States and the former Soviet Union. This was the first workshop ever to bring together about 50 international experts in the field from these two countries and Western Europe. The volume features 14 research papers by participants on topics discussed at the workshop as well as a list of the open problems presented at the workshop. Many of the papers focus particularly on applications of recursion theory to other areas of mathematics, such as algebra, analysis, model theory, and proof theory.

Samuel R. BUS, Peter HÁJEK, Pavel PUDLÁK, (Editors). — **Logic colloquium.** — Proceedings of the Annual European Meeting of the Association for Symbolic Logic, held in Prague, Czech Republic, August 9-15, 1998. — Lecture notes in logic, No. 13. — Un vol. relié, 17×25, de xv, 541 p. — ISBN 1-56881-113-6. — Prix: US\$85.00 — A.K. Peters, Natick, Massachusetts, 2000.

This volume contains the proceedings of the meeting with papers covering current research from all areas of mathematical logic, including proof theory, set theory, model theory, computability theory and philosophy. Logic Colloquium '98 includes twelve articles on proof theory; a survey of fuzzy logic; nine articles on set theory; four articles on computability theory, including a historical article based on H. Rogers' 1965 agenda for recursive function theory; four articles on model theory; and two articles on belief theories. A number of these articles deal with theoretical computer science.

Edward R. GRIFFOR, (Editor). — **Handbook of computability theory.** — Studies in logic and the foundations of mathematics, vol. 140. — Un vol. relié, 15,5×23, de XII, 727 p. — ISBN 0-444-89822-4. — Prix: Dfl. 295.00. — Elsevier, Amsterdam, 1999.

The chapters of this volume all have their own level of presentation. The topics have been chosen based on the active research interest associated with them. Since the interest in some topics is older than that in others, some presentations contain fundamental definitions and basic results while others relate very little of the elementary theory behind them and aim directly toward an exposition of advanced results. Presentations of the latter sort are in some cases restricted to a short survey of recent results (due to the complexity of the methods and proofs themselves). Hence the variation in level of presentation from chapter to chapter only reflects the conceptual situation itself. One example of this is the collective efforts to develop an acceptable theory of computation on the real numbers. The last two decades has seen at least two new definitions of effective operations on the real numbers.