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With contrib. by: **J. D. Harris**, Harvard University Dept. Mathematics, Cambridge, MA, USA

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Ordinary Differential Equations

Transl. Russian: **R. Cooke**, Delft University of Technology Dept. Mathematics, Delft, Netherlands

The first two chapters of this book have been thoroughly revised and significantly expanded. Sections have been added on elementary methods of integration (on homogeneous and inhomogeneous first-order linear equations and on homogeneous and quasi-homogeneous equations), on first-order linear and quasi-linear partial differential equations, on equations not solved for the derivative, and on Sturm's theorems on the zeros of second-order linear equations. Thus the new edition contains all the questions of the current syllabus in the theory of ordinary differential equations.

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Real Algebraic Geometry

Transl. Russian: **G. G. Gould**, Cardiff University, Cardiff, UK

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MIT, I was lucky enough to experience as a gradu-
ate student. I am very thankful to him! That course
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courses on symplectic geometry and topology, and
from many talks and discussions of the symplectic
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Cetraro, Italy 2011, Editors: Filippo Bracci, John Erik Fornæss

Scientific editor: F. Bracci, Università di Roma "Tor Vergata" Dipartimento di Matematica, Rome, Italy; J. E. Fornæss, University of Michigan Department of Mathematics, Ann Arbor, MI, USA

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Translated by: **C. Hamilton**, With contrib. by:

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Mathematics Across Cultures: A History of Non-Western Mathematics consists of essays dealing with the mathematical knowledge and beliefs of cultures outside the United States and Europe. In addition to articles surveying Islamic, Chinese, Native American, Aboriginal Australian, Inca, Egyptian, and African mathematics, among others, the book includes essays on Rationality, Logic and Mathematics, and the transfer of knowledge from East to West. The essays address the connections between science and culture and relate the mathematical practices to the cultures which produced them. Each essay is well illustrated and contains an extensive bibliography.

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M. Senechal, Smith College Dept. Mathematics & Statistics, Northampton, MA, USA (Ed)

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J.-P. Serre, College de France Paris Chaire d'Algebre et Geometrie, Paris CX 05, France

Galois Cohomology

Transl. French: P. Ion

This volume is an English translation of "Cohomologie Galoisienne". The original edition (Springer LN5, 1964) was based on the notes, written with the help of Michel Raynaud, of a course I gave at the College de France in 1962-1963. In the present edition there are numerous additions and one suppression: Verdier's text on the duality of profinite groups. The most important addition is the photographic reproduction of R. Steinberg's "Regular elements of semisimple algebraic groups", Publ. Math. L.H.E.S., 1965. I am very grateful to him, and to L.H.E.S., for having authorized this reproduction. Other additions include: - A proof of the Golod-Shafarevich inequality (Chap. I, App.2).

Softcover reprint of the original 1st ed. 1997. X, 211 p. (Springer Monographs in Mathematics) Softcover
ISBN 978-3-642-63866-4

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J.-P. Serre, College de France Paris Chaire d'Algebre et Geometrie, Paris CX 05, France

Lie Algebras and Lie Groups

1964 Lectures given at Harvard University

The main general theorems on Lie Algebras are covered, roughly the content of Bourbaki's Chapter I. I have added some results on free Lie algebras, which are useful, both for Lie's theory itself (Campbell-Hausdorff formula) and for applications to pro-Lie groups. Of time prevented me from including the more precise theory of Lie semisimple Lie algebras (roots, weights, etc.); but, at least, I have given, as a last Chapter, the typical case of $\mathfrak{sl}_n$. This part has been written with the help of F. Raggi and J. Tate. I want to thank them, and also Sue Golan, who did the typing for both parts. Jean-Pierre Serre Harvard, Fall 1964 Chapter I.

2nd ed. 1992. Corr. 5th printing 2005. VIII, 176 p. (Lecture Notes in Mathematics, Volume 1500) Softcover

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I. R. Shafarevich, Steklov Mathematical Institute Algebra Section, Moscow, Russia; A. Remizov, CMAP, École Polytechnique CNRS, Palaiseau Cedex, France

Linear Algebra and Geometry

Transl. Russian: D. P. Kramer, Lancaster, PA, USA; L. Nekludova, Brookline, MA, USA

Opening with the theory of linear algebraic equations and basic elements of matrix theory, this book includes topics not usually covered: exterior algebras, non-Euclidean geometry, theory of quadrics and more. Offers examples from various mathematical fields.

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1999. XI, 246 p. 46 illus. Softcover
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J. H. Silverman, Brown University Department of Mathematics, Providence, RI, USA; J. T. Tate, Harvard University, Cambridge, MA, USA

Rational Points on Elliptic Curves

In 1961 the second author delivered a series of lectures at Haverford College on the subject of Rational Points on Cubic Curves. These lectures, intended for junior and senior mathematics majors, were recorded, transcribed, and printed in mimeograph form. Since that time they have been widely distributed as photocopies of ever decreasing legibility, and portions have appeared in various textbooks (Husemoller [1], Chahal [1]), but they have never appeared in their entirety.

1st ed. 1992. Corr. 2nd printing 1994. X, 281 p. (Undergraduate Texts in Mathematics) Hardcover ISBN 978-0-387-97825-3

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N. Sidoli, Waseda University, Tokyo, Japan; G. Van Brummelen, Quest University, Squamish, BC, Canada (Eds)

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The Arithmetic of Elliptic Curves

The theory of elliptic curves is distinguished by the diversity of the methods used in its study. This book treats the arithmetic theory of elliptic curves in its modern formulation, through the use of basic algebraic number theory and algebraic geometry.

2nd ed. 2009. (Graduate Texts in Mathematics, Volume 106) Hardcover ISBN 978-0-387-09493-9

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9 780387 094939

K. Smith

Primer of Modern Analysis

Directions for Knowing All Dark Things,
Rhind Papyrus, 1800 B.C.

This book discusses some of the first principles of modern analysis. It can be used for courses at several levels, depending upon the background and ability of the students. It was written on the premise that today's good students have unexpected enthusiasm and nerve. When hard work is put to them, they work harder and ask for more. The honors course (at the University of Wisconsin) which inspired this book was, I think, more fun than the book itself. And better. But then there is acting in teaching, and a typewriter is a poor substitute for an audience. The spontaneous, creative disorder that characterizes an exciting course becomes silly in a book.

2nd ed. 1983. XV, 446 p. (Undergraduate Texts in Mathematics) Hardcover
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G. Smith, O. Tabachnikov

Topics in Group Theory

We very much hope that this book will be read by the interested student (and not just be parked on a shelf for occasional consultation). If you want a comprehensive reference book on Group Theory, do not buy this text. There are much better books available, some of which are mentioned below. We have a tale to tell; the absolute essentials of the theory of groups, followed by some entertainments and some more advanced material. The theory of groups is an enormous body of material which interacts with other branches of mathematics at countless frontiers. Some parts of the theory are essentially complete, but in other areas all we see are questions. People happily read novels, so why not mathematics books?

2000. XVI, 256 pp. 16 figs. (Springer Undergraduate Mathematics Series) Softcover
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J. Souriau

Structure of Dynamical Systems

A Symplectic View of Physics

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1997. XXXIV, 406 p. (Progress in Mathematics, Volume 149) Hardcover
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Linear Algebraic Groups

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3rd ed. 2010. XXII, 662 p. (Undergraduate Texts in Mathematics) Hardcover
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J. Stillwell, University of San Francisco, San Francisco, CA, USA

Geometry of Surfaces

Geometry used to be the basis of a mathematical education; today it is not even a standard undergraduate topic. Much as I deplore this situation, I welcome the opportunity to make a fresh start. Classical geometry is no longer an adequate basis for mathematics or physics—both of which are becoming increasingly geometric—and geometry can no longer be divorced from algebra, topology, and analysis. Students need a geometry of greater scope, and the fact that there is no room for geometry in the curriculum until the third or fourth year at least allows us to assume some mathematical background. What geometry should be taught? I believe that the geometry of surfaces of constant curvature is an ideal choice, for the following reasons: 1. It is basically simple and traditional.

1st ed. 1992. Corr. 2nd printing 1995. XI, 236 p. (Universitext) Softcover
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This is the softcover reprint of a popular book teaching the basic analytical and computational methods of partial differential equations. It includes coverage of standard topics such as separation of variables, Fourier analysis, and energy estimates.

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