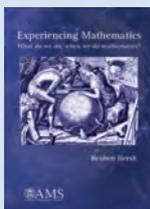


PHILOSOPHY OF MATHEMATICS

The unusual and unusually good books below take a look at the concepts and methods of mathematics through a philosophical lens, while also attempting to start dialogues between mathematicians and scientists of other disciplines.



Experiencing Mathematics

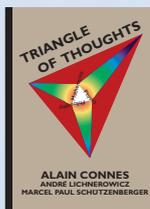
What do we do, when we do mathematics?

Reuben Hersh, *University of New Mexico, Albuquerque, NM*

Most mathematicians, when asked about the nature and meaning of mathematics, vacillate between the two unrealistic poles of Platonism and formalism. By looking carefully at what mathematicians really do when they are doing mathematics, Reuben Hersh offers an escape from this trap. This book of selected articles and essays provides an honest, coherent, and clearly understandable account of mathematicians' proof as it really is, and of the existence and reality of mathematical entities. It follows in the footsteps of Poincaré, Hadamard, and Polya. The pragmatism of John Dewey is a better fit for mathematical practice than the dominant "analytic philosophy". Dialogue, satire, and fantasy enliven the philosophical and methodological analysis.

Reuben Hersh has written extensively on mathematics, often from the point of view of a philosopher of science. His book with Philip Davis, *The Mathematical Experience*, won the National Book Award in science. Hersh is emeritus professor of mathematics at the University of New Mexico.

2014; approximately 257 pages; Softcover; ISBN: 978-0-8218-9420-0; List US\$539; AMS members US\$31.20; Order code MBK/83



Triangle of Thoughts

Alain Connes, André Lichnerowicz, and Marcel Paul Schützenberger

Our view of the world today is fundamentally influenced by twentieth century results in physics and mathematics. Here, three members of the French Academy of Sciences: Alain Connes, André Lichnerowicz, and Marcel Paul Schützenberger, discuss the relations among mathematics, physics, and philosophy, as well as other sciences. Written in the form of conversations among these three brilliant scientists and deep thinkers, the book touches on various profound questions, such as:

- Is there a "primordial truth" that exists beyond the realm of what is provable? More generally, is there a distinction between what is true in mathematics and what is provable?
- How is mathematics different from other sciences? How is it the same? Does mathematics have an "object" or an "object of study", the way physics, chemistry, and biology do?
- If mathematics is a lens through which we view the world, how does that lens affect what we see and how does it limit it?
- How does a well-informed mathematician view fundamental topics of physics, such as: quantum mechanics, general relativity, quantum gravity, grand unification, and string theory?

The conversations are sprinkled with stories and quotes from outstanding scientists, which enliven the discourse. The book will make you think again about things that you once thought were quite familiar.

2001; 179 pages; Hardcover; ISBN: 978-0-8218-2614-0; List US\$536; AMS members US\$28.80; Order code TOT

Mathematics under the Microscope

Notes on Cognitive Aspects of Mathematical Practice

Alexandre V. Borovik, *University of Manchester, United Kingdom*

A lighthearted look at the mystery of mathematical intuition, demonstrating the essential vertical unity of mathematics.

2010; 317 pages; Hardcover; ISBN: 978-0-8218-4761-9; List US\$59; AMS members US\$47.20; Order code MBK/71

Mathematics as Metaphor

Selected Essays of Yuri I. Manin

Yuri I. Manin, *Northwestern University, Evanston, IL, and Steklov Mathematical Institute, Moscow, Russia*

Essays conveying the wide interests of a mathematician who delights in presenting concepts that unify thinking from different disciplines.

Collected Works, Volume 20; 2007; 232 pages; Hardcover; ISBN: 978-0-8218-4331-4; List US\$50; AMS members US\$40; Order code CWORKS/20



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