

Contents

Preface	ix
Introduction	xiii
Part I Challenging Foundations	1
Some Proposals for Reviving the Philosophy of Mathematics <i>Reuben Hersh</i>	9
A Renaissance of Empiricism in the Recent Philosophy of Mathematics? <i>Imre Lakatos</i>	29
What Is Mathematical Truth? <i>Hilary Putnam</i>	49
“Modern” Mathematics: An Educational and Philosophic Error? <i>René Thom</i>	67
Mathematics as an Objective Science <i>Nicholas D. Goodman</i>	79
Interlude	95
From the Preface of <i>Induction and Analogy in Mathematics</i> <i>George Polya</i>	99
Generalization, Specialization, Analogy <i>George Polya</i>	103
Part II Mathematical Practice	125
WHAT IS MATHEMATICAL PRACTICE?	
Theory and Practice in Mathematics <i>Hao Wang</i>	129

What Does a Mathematical Proof Prove? <i>Imre Lakatos</i>	153
Fidelity in Mathematical Discourse: Is One and One Really Two? <i>Philip J. Davis</i>	163
The Ideal Mathematician <i>Philip J. Davis and Reuben Hersh</i>	177
THE EVOLUTION OF MATHEMATICAL PRACTICE	
The Cultural Basis of Mathematics <i>Raymond L. Wilder</i>	185
Is Mathematical Truth Time-Dependent? <i>Judith V. Grabiner</i>	201
Mathematical Change and Scientific Change <i>Philip Kitcher</i>	215
COMPUTERS AND MATHEMATICAL PRACTICE: A CASE STUDY	
The Four-Color Problem and Its Philosophical Significance <i>Thomas Tymoczko</i>	243
Social Processes and Proofs of Theorems and Programs <i>Richard A. De Millo, Richard J. Lipton, and Alan J. Perlis</i>	267
Information-Theoretic Computational Complexity and Gödel's Theorem and Information <i>Gregory Chaitin</i>	287
Bibliography	313