

Contents

Preface	ix
Acknowledgments	xi
Introduction: Mathematics and Philosophy of Mathematics	
Dale Jacquette	1
Part I The Realm of Mathematics	
<i>Introduction to Part I</i>	13
1 <i>What is Mathematics About?</i>	
Michael Dummett	19
2 <i>Mathematical Explanation</i>	
Mark Steiner	30
3 <i>Frege versus Cantor and Dedekind: On the Concept of Number</i>	
William W. Tait	40
4 <i>The Present Situation in the Philosophy of Mathematics</i>	
Henry Mehlberg	65
Part II Ontology of Mathematics and the Nature and Knowledge of Mathematical Truth	
<i>Introduction to Part II</i>	85
5 <i>What Numbers Are</i>	
N. P. White	91
6 <i>Mathematical Truth</i>	
Paul Benacerraf	99

Contents

7	<i>Ontology and Mathematical Truth</i> Michael Jubien	110
8	<i>An Anti-realist Account of Mathematical Truth</i> Graham Priest	119
9	<i>What Mathematical Knowledge Could Be</i> Jerrold J. Katz	128
10	<i>The Philosophical Basis of Our Knowledge of Number</i> William Demopoulos	147

Part III Models and Methods of Mathematical Proof

	<i>Introduction to Part III</i>	165
11	<i>Mathematical Proof</i> G. H. Hardy	173
12	<i>What Does a Mathematical Proof Prove?</i> Imre Lakatos	187
13	<i>The Four-Color Problem</i> Kenneth Appel and Wolfgang Haken	193
14	<i>Knowledge of Proofs</i> Peter Pagin	209
15	<i>The Phenomenology of Mathematical Proof</i> Gian-Carlo Rota	218
16	<i>Mechanical Procedures and Mathematical Experience</i> Wilfried Sieg	226

Part IV Intuitionism

	<i>Introduction to Part IV</i>	261
17	<i>Intuitionism and Formalism</i> L. E. J. Brouwer	269
18	<i>Mathematical Intuition</i> Charles Parsons	277
19	<i>Brouwerian Intuitionism</i> Michael Detlefsen	289
20	<i>A Problem for Intuitionism: The Apparent Possibility of Performing Infinitely Many Tasks in a Finite Time</i> A. W. Moore	312
21	<i>A Pragmatic Analysis of Mathematical Realism and Intuitionism</i> Michel J. Blais	322

Part V Philosophical Foundations of Set Theory

	<i>Introduction to Part V</i>	337
22	<i>Sets and Numbers</i> Penelope Maddy	345
23	<i>Sets, Aggregates, and Numbers</i> Palle Yourgrau	355
24	<i>The Approaches to Set Theory</i> John Lake	362
25	<i>Where Do Sets Come From?</i> Harold T. Hodes	377
26	<i>Conceptual Schemes in Set Theory</i> Robert McNaughton	396
27	<i>What is Required of a Foundation for Mathematics?</i> John Mayberry	404
	<i>Index</i>	417