Contents

Preface vii
Fernando Hitt, Derek Holton, and Patrick W. Thompson

Representing and Defining Irrational Numbers: Exposing the Missing Link 1
Rina Zazkis and Natasa Sirotic

Students' Use of *Derive* Software in Comprehending and Making Sense of Definite Integral and Area Concepts 29
Matías Camacho Machín, Ramón Depool Rivero, and Manuel Santos-Trigo

Mathematicians' Perspectives on the Teaching and Learning of Proof 63
Lara Alcock

Referential and Syntactic Approaches to Proving: Case Studies from a Transition-to-Proof Course 93
Lara Alcock and Keith Weber

Step by Step: Infinite Iterative Processes and Actual Infinity 115
Anne Brown, Michael A. McDonald, and Kirk Weller

Teaching Assistants Learning How Students Think 143
David T. Kung

An Examination of the Knowledge Base for Teaching Among Mathematics Faculty Teaching Calculus in Higher Education 171
Kimberly S. Sofronas and Thomas C. DeFranco

Modeling Students' Conceptions: The Case of Function 207
Nicolas Balacheff and Nathalie Gaudin

Strategies for Controlling the Work in Mathematics Textbooks for Introductory Calculus 235
Vilma Mesa