



Preface

The authors of *Mathematics for Elementary Teachers: A Conceptual Approach* believe that all students should learn mathematics in a way that fosters conceptual understanding and that prospective teachers should learn in a manner that generates enthusiasm for learning and teaching mathematics.

New to the tenth edition is a special emphasis on the *Common Core State Standards and Practices for Mathematics*. Each section of the book now highlights connections between these practices and standards and the concepts and skills discussed in that section.

This edition also continues to embody the standards and practices developed over many years by the *National Council of Teachers of Mathematics* in their *Principles and Standards* and *Focal Points* publications.

OUR APPROACH

Our primary goal is to support future teachers in their journey toward becoming effective teachers who can help their own students succeed in mathematics.

Effective teachers

- Understand deeply the mathematical concepts they will be teaching, and also understand the larger scope of concepts that precede and follow them.
- Look for ways to help students build bridges connecting to new knowledge.
- Are problem solvers and have a readily available tool kit of problem-solving techniques.
- Are familiar with the *Common Core State Standards and Practices for Mathematics*.
- Are comfortable using hands-on activities that model mathematical concepts.
- Understand the connections between their own study of mathematics and the elementary school curriculum.

To get the most from this book you should

- Be an active learner as you seek to acquire a clear understanding of mathematical concepts.
- Use manipulatives as you work through the **Math Activity** at the beginning of each section.
- Answer each **Try It!** question as you read through a text section.
- Answer the questions embedded within each **Problem-Solving Application** as you work on a section.
- Read the margin notes to help see how the *Common Core State Standards for Mathematics* are connected to the topics in each section.
- Reflect about how your learning will impact your future classroom teaching.

NEW TO THE TENTH EDITION

- The *Common Core State Standards and Practices for Mathematics* are connected to all chapters and sections of the text.
 - A new **Spotlight on Teaching and Learning** opens each chapter connecting its contents to the *Common Core*.

- Margin notes relate specific *Practices and Standards* to specific concepts and skills.
- End-of-section **Classroom Connections** pose questions for reflection on the *Common Core State Standards and Practices for Mathematics*.
- **Section 8.3: Counting, Permutations, and Combinations** is new to this edition, expanding our treatment of permutations and combinations, and includes new subsections on Pascal's triangle, the Binomial Coefficients, and the Binomial theorem.
- **Chapter 9: Algebra** is new to this edition and collects and expands our treatment of Problem Solving with Algebra, Coordinates, Slopes and Lines, and Functions and Graphs.
- New **Try It!** questions have been added to every section to increase student involvement as they read the text.
- The **Problem-Solving Applications** have been reformatted so students must answer intermediary questions before moving to the next step.
- New **Technology and Lab Explorations** are featured in some sections and in some **Exercises and Problem** sets and offer an opportunity to explore an interesting topic in more depth.

FEATURES OF THE TENTH EDITION

Chapter Level

- Each chapter begins with a new **Spotlight on Teaching and Learning**, showing connections between the topics and materials in the chapter and the *Common Core State Standards and Practices for Mathematics*.
- Each chapter ends with a **Chapter Review** and a **Chapter Test**.

Section Level

- Each section begins with a **Math Activity** that fosters group discussions and uses manipulatives from the manipulative kit (cardstock and virtual, see **Student Resources**) or other commonly available classroom supplies.
- A **Problem Opener** poses an interesting problem to be solved and serves as a warm-up to the topics of the section.
- **Try It!** questions in every section take the place of many examples and put more responsibility on the student to become involved in the learning of important concepts and skills.
- **Problem-Solving Applications** offer an emphasis on problem solving and Polya's four steps and provide opportunities to practice problem solving skills.
- *Common Core* and *NCTM* standards relating to the topics under consideration are noted throughout each section, and questions corresponding to these standards are found in the **Classroom Connections** section of the **Exercises and Problems** at the end of each section.
- **Historical Highlights** describe the origins and evolution of key mathematical ideas and provide background on some of history's outstanding mathematicians.
- **Elementary School Text Pages** taken from current grade school textbooks show how key concepts from the section are presented to K–8 students. Questions corresponding to these pages can be found in the **Teaching Questions** section of the **Exercises and Problems** at the end of each section.
- **Technology and Lab Explorations** offer the opportunity to explore an interesting topic in more depth.
- **Interactive Math Applets**, described in many sections, can be found at www.mhhe.com/bbne and are designed for interactive explorations of some of the key concepts of the text.
- **McGraw-Hill's Connect** is a web-based assignment and assessment platform that helps students connect to their coursework and prepares them to succeed in and beyond the course. A full color e-book is available for each Connect user.