

PREFACE

This book is designed to take the mystery out of algebra. Each section contains exactly one new idea—unlike most math books, which cover several ideas at once. Clear, brief explanations are followed by detailed examples. Each section ends with a few Practice problems, most similar to the examples. Solutions to the Practice problems are also given in great detail. The goal is to help you understand the algebra concepts while building your skills and confidence.

Each chapter ends with a Chapter Review, a multiple-choice test designed to measure your mastery of the material. The Chapter Review could also be used as a pretest. If you think you understand the material in a chapter, take the Chapter Review test. If you answer all of the questions correctly, then you can safely skip that chapter. When taking any multiple-choice test, work the problems before looking at the answers. Sometimes incorrect answers look reasonable and can throw you off. Once you have finished the book, take the Final Review, which is a multiple-choice test based on material from each chapter.

Spend as much time in each section as you need. Try not to rush, but do make a commitment to learning on a schedule. If you find a concept difficult, you might need to work the problems and examples several times. Try not to jump around from section to section as most sections extend topics from previous sections.

Not many shortcuts are used in this book. Does that mean you shouldn't use them? No. What you should do is try to find the shortcuts yourself. Once you have found a method that seems to be a shortcut, try to figure out *why* it works. If you understand how a shortcut works, you are less likely to use it incorrectly (a common problem with algebra students).

Because many find fraction arithmetic difficult, the first chapter is devoted almost exclusively to fractions. Make sure you understand the steps in this chapter because they are the same steps used in much of the rest of the book. For example, the steps used to compute $\frac{7}{36} + \frac{5}{16}$ are exactly those used to compute $\frac{2x}{x^2 + x - 2} + \frac{6}{x + 2}$.

Even those who find algebra easy are stumped by word problems (also called “applications”). In this book, word problems are treated very carefully. Two important skills needed to solve word problems are discussed earlier than the word problems themselves. First, you will learn how to find quantitative relationships in word problems and how to represent them using variables. Second, you will learn how to represent multiple quantities using only one variable.

Most application problems come in “families”—distance problems, work problems, mixture problems, coin problems, and geometry problems, to name a few. As in the rest of the book, exactly one topic is covered in each section. If you take one section at a time and really make sure you understand why the steps work, you will find yourself able to solve a great many applied problems—even those not covered in this book.

Good luck.

RHONDA HUETTENMUELLER