The fifth edition of *Trigonometry* is designed for a variety of students with different mathematical needs. For those students who will take additional mathematics, this text will provide the proper foundation of skills, understanding, and insights for success in subsequent courses. For those students who will not further pursue mathematics, the extensive emphasis on applications and modeling will demonstrate the usefulness and applicability of trigonometry in the modern world. I am always on the lookout for real-life applications of mathematics, and I have included many problems that people actually encounter on the job. With an emphasis on problem solving, this text provides students an excellent opportunity to sharpen their reasoning and thinking skills. With increased problem-solving capabilities, students will have confidence to tackle problems that they encounter inside and outside the mathematics classroom.

**NEW TO THIS EDITION**

- Numerous explanations, examples, and exercises have been rewritten in response to comments from users of the fourth edition.
- This edition contains many new nonstandard exercises, ranging from easy to challenging. There is nothing this author enjoys more than creating original exercises. (e.g. exercise 33, p. 274).
- Section 2.5, Combining Functions, has been rewritten to put more emphasis on producing the graphs with a graphing calculator than drawing them by hand.
- Section 3.2, Verifying Identities, has been rewritten so that there are six examples corresponding to the six-point strategy for verifying identities. The exercise set now contains four exercises corresponding to each point of the six-point strategy and they are labeled as such (e.g. exercise 15, p. 181). This arrangement will give students the opportunity to see how each point of the strategy can be used. In the mixed exercises that follow, students decide which point of the strategy will work on each exercise.
- Multiplying trigonometric binomials and factoring trigonometric expressions have been moved from Section 3.2 to Section 3.1. Now Section 3.2 concentrates solely on verifying identities using the six-point strategy.
- All graphing calculator screen shots have been redone using the TI-84 Plus CE.
- A new section has been added to Chapter 6, Fun with Polar and Parametric Equations. With polar and parametric equations, producing interesting graphs on a calculator that would be impossible to draw by hand. This section contains only one exercise on page 360. This author will award a $100 prize to the first student who submits a correct solution. See page 360 for more details.

**CONTINUING FEATURES**

With each new edition, all of the features are reviewed to make sure they are providing a positive impact on student success. The continuing features of the text are listed here.

**Strategies for Success**

- **Chapter Opener** Each chapter begins with chapter opener text that discusses a real-world situation in which the mathematics of the chapter is used. Examples and exercises that relate back to the chapter opener are included in the chapter.
- **Try This** Occurring immediately after every example in the text is an exercise that is very similar to the example. These problems give students the opportunity to immediately check their understanding of the example. Solutions to all *Try...
This exercises are in Online Appendix A, which can be found in MyLab Math or in the Instructor Resource Center. See p. 116.

- **Summaries** of important concepts are included to help students clarify ideas that have multiple parts. See p. 235.

- **Strategies** contain general guidelines for solving certain types of problems. They are designed to help students sharpen their problem-solving skills. See p. 180.

- **Procedures** are similar to Strategies but are more specific and more algorithmic. Procedures are designed to give students a step-by-step approach for solving a specific type of problem. See p. 127.

- **Function Galleries** Located throughout the text, these function summaries are all gathered at the end of the text. These graphical summaries are designed to help students link the visual aspects of various families of functions to the properties of the functions. See p. 131.

- **Hints** Selected applications include hints that are designed to encourage students to start thinking about the problem at hand. A Hint logo HINT is used where a hint is given. See p. 218.

- **Graphing Calculator Discussions** Optional graphing calculator discussions have been included in the text. They are clearly marked by graphing calculator icons so that they can be easily skipped if desired. Although the graphing calculator discussions are optional, all students will benefit from reading them. In this text, the graphing calculator is used as a tool to support and enhance conclusions, not to make conclusions. See p. 171.

**Section Exercises and Review**

- **For Thought** Each exercise set is preceded by a set of ten true/false questions that review the basic concepts in the section, help check student understanding, and offer opportunities for writing and discussion. The answers to all For Thought exercises are included in the back of the Student Edition.

- **Exercise Sets** The exercise sets range from easy to challenging and are arranged in order of increasing difficulty. Those exercises that require a graphing calculator are optional and are marked with an icon.

- **Writing/Discussion Exercises** These exercises deepen students’ understanding by giving them the opportunity to express mathematical ideas both in writing and to their classmates during small group or team discussions. See p. 243.

- **Outside the Box** Found throughout the text, these problems are designed to get students and instructors to do some mathematics just for fun. I enjoyed solving these problems and hope that you will also. The problems can be used for individual or group work. They may or may not have anything to do with the sections in which they are located and might not even require any techniques discussed in the text. So be creative and try thinking Outside the Box. See p. 244. The answers are given in the Annotated Instructor’s Edition only, and complete solutions can be found in the Instructor’s Solutions Manual. Online Appendix B contains 34 extra Outside the Box problems.

- **Pop Quizzes** Included at the end of every section of the text, the Pop Quizzes give instructors and students convenient quizzes that can be used in the classroom to check understanding of the basics. The answers appear in the Annotated Instructor’s Edition only. New for this edition, all Pop Quiz questions are available in Learning Catalytics to assess students in real time! See p. 252.

- **Linking Concepts** This feature is located at the end of nearly every exercise set. It is a multipart exercise or exploration that can be used for individual or group work. The idea of this feature is to use concepts from the current section along with concepts from preceding sections or chapters to solve problems that illustrate the links among various ideas. Some parts of these questions are open-ended and require somewhat more thought than standard skill-building exercises. See p. 215. Answers are given in the Annotated Instructor’s Edition only, and full solutions can be found in the Instructor’s Solutions Manual.
Chapter Review

- **Highlights** This end-of-chapter feature contains an overview of all of the concepts presented in the chapter, along with brief examples to illustrate the concepts.
- **Chapter Review Exercises** These exercises are designed to give students a comprehensive review of the chapter without reference to individual sections and to prepare students for a chapter test.
- **Chapter Test** The problems in the Chapter Test are designed to measure the student’s readiness for a typical one-hour classroom test. Instructors may also use them as a model for their own end-of-chapter tests. Students should be aware that their in-class test could vary from the Chapter Test due to different emphasis placed on the topics by individual instructors.
- **Tying It All Together** Found at the end of most chapters in the text, these exercises help students review selected concepts from the present and prior chapters and require students to integrate multiple concepts and skills. See p. 219.
- **Index of Applications** The many applications contained within the text are listed in the Index of Applications that appears at the end of the text. The applications are page referenced and grouped by subject matter.
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This printed guide aligns to the Integrated Review topics and gives students a structured place to take notes as they work through the prerequisite objectives. Definitions, unique examples, and important concepts are highlighted. The notebook is available as a print supplement or in MyLab Math for download.

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TestGen
TestGen (www.pearsoned.com/testgen) enables instructors to build, edit, print, and administer tests using a computerized bank of questions developed to cover all the objectives of the text.

Powerpoint Lecture Slides
(Download Only)
Classroom presentation slides are geared specifically to sequence the text. Available in MyLab Math.

Annotated Instructor’s Edition
(ISBN: 9780135207468)
This edition provides answers beside the text exercises for most exercises and in an answer section at the back of the book for all others. Groups of exercises are keyed back to corresponding examples from the section.

Instructor’s Solutions Manual
(Download Only)
This manual provides complete solutions to all text exercises, including the For Thought and Linking Concepts exercises.

Instructor’s Testing Manual
(Download only)
This resource provides six prepared test forms for each chapter of the text as well as answers. One test form is available for each section of Chapter P.

Student Resources
Additional resources are available to help students succeed.

Example Videos
These new videos provide comprehensive coverage of key topics in the text in an engaging format. Includes optional subtitles. All videos are assignable within MyLab Math.

Student’s Solutions Manual
(ISBN: 9780135232927)
This manual provides detailed solutions to odd-numbered exercises in the text.

Integrated Review Notebook
(ISBN: 9780135207529)
This printed guide offers a structured place to engage with the foundational concepts of Trigonometry. Each concept has a concise exposition followed by a guided example and practice exercises. Ideal for corequisite class time or independent study.

Graphing Resources
Interactive tutorials and how-to videos are available for GeoGebra and TI-84 Plus, respectively. These resources and more can be found in the Graphing Resources tab in MyLab Math. Students will be able to launch GeoGebra Graphing Calculator from that tab or they can download the free app while completing their homework assignments.
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