Preface

Clarity of exposition was always of paramount importance to Philip Gillett, the original sole author of this calculus textbook. It was written to be read and comprehended—by student and instructor alike. It was not intended to serve as merely a reference to consult when stuck on a problem. When Dr. Gillett passed away in 2012, a team of new coauthors was brought on to update the text, and they have striven to maintain Dr. Gillett's original tone and intent.

Concepts are presented in a familiar order. However, in keeping with Gillett's vision, this is not a text that reduces major ideas to a lackluster list of definitions, theorems, proofs, and examples. Rather, this text seeks to motivate study by using examples based on the questions one would ask while exploring important ideas. The definitions, theorems, and proofs are then drawn out as natural consequences.

As in previous editions, chapter openers present real-world examples of concepts featured in the chapter and are designed to pique the interest of students and serve as a starting point for motivated study. These examples were originally intended to inspire students to explore concepts more thoroughly through discussion, research, and projects; the team of authors updating this text have honored that intention by bringing examples up to date with the latest technologies and career opportunities.

Practice problems not only serve as a way for students to develop fundamental techniques but also invoke deeper consideration of key concepts. As they work through these problems, students will draw conclusions and relate ideas from precalculus and other fields to calculus. This will lead students to ask more questions as they continue to study mathematics on its own as well as the mathematics involved in fields like physics, chemistry, and engineering, to name a few. Even though technology is now prevalent in mathematics, this text depends heavily on the pencil-and-paper techniques of a traditional calculus text. Basic approaches remain the focus, but technology is not ignored entirely. For example, many of the exploration problems involve the use of graphing technology and should be done using a graphing calculator.

This new edition continues to cover single variable calculus for the first fourteen chapters. These could be used for a two-semester sequence, covering seven chapters per course. The last 6 of the 20 chapters cover vectors, vector functions, multivariable calculus, and differential equations, and could be used for a third-semester course

Featuring more than 4,700 exercises in problem sets distributed throughout 113 sections, as well as 800 additional exercises included at the ends of the chapters, this book offers a multitude of problems for students to work through. Of these, approximately 90 exercises require a graphing calculator or other sort of graphing technology. However, more important than quantity is quality. An effort was made to include a variety of problems

ranging from routine and practice-oriented to thought-provoking and challenging. The application of calculus to other subjects—physics, chemistry, astronomy, engineering, and business—is also included in the exercise sets, emphasizing real-world applicability.

Reviewers of this and previous editions include the following:

Walter Kelley, University of Oklahoma
Melvin D. Lax, California State University, Long Beach
Carol S. O'Dell, Ohio Northern University
Charles Slavin, University of Maine
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Robert B. Wenger, University of Wisconsin-Green Bay
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