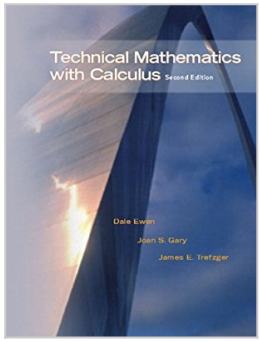

Technical Mathematics with Calculus, 2nd Edition

By Dale Ewen, Joan S. Gary, James E. Trefzger

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//-->4882B-1, 0-13-048822-4, Ewen, Dale, Gary, Joan S., Trefzger, James E., Technical Mathematics with Calculus, 2/E//--> This book provides readers with necessary mathematics skills, including practical calculus. Mathematics provides the essential framework for and is the basic language of all the technologies. Mathematical, problem-solving, and critical thinking skills are crucial to understanding the changing face of technology. It presents the following major areas: fundamental concepts and measurement; fundamental algebraic concepts; exponential and logarithmic functions; right-triangle trigonometry; the trigonometric functions with formulas and identities; complex numbers; matrices; polynomial and rational functions; basic statistics; analytic geometry; differential and integral calculus with applications; partial derivatives and double integrals; series; and differential equations. An excellent learning aid and resource tool for engineers, especially computer software, hardware, and peripheral manufacturers. Its comprehensive appendices make this an excellent desktop reference.

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Technical Mathematics with Calculus, 2nd Edition By Dale Ewen, Joan S. Gary, James E. Trefzger Bibliography

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Editorial Review

From the Inside Flap
Preface

Technical Mathematics with Calculus provides the necessary comprehensive mathematics skills for students in an engineering technology program that requires a development of practical calculus.

The text presents the following major areas: fundamental concepts and measurement; fundamental algebraic concepts; exponential and logarithmic functions; right-triangle trigonometry, the trigonometric functions, and trigonometric formulas and identities; complex numbers; matrices; polynomial and rational functions; statistics for process control; analytic geometry; differential and integral calculus with applications; partial derivatives and double integrals; series; and differential equations. KEY FEATURES Numerous detailed, illustrated examples Chapter review summaries Chapter review exercises Important formulas and principles are highlighted Abundant two-color illustrations Two-color format that effectively highlights and illustrates important principles Comprehensive development and consistent use of measurement and significant digits throughout the text Instruction using a basic graphing calculator (Appendix C) and an advanced graphing calculator (Appendix D) is developed in the appendices. Calculator examples are integrated throughout the text; graphing calculator may be used as a faculty option. Chapter introductions and chapter objectives More than 8400 exercises Essential geometry is reviewed in Appendix A The metric system is developed in Appendix B StudyWizard CD-ROM that contains additional exercises keyed to each section Companion Website that contains different additional exercises keyed to each section Instructor's Manual with solutions for selected odd-numbered exercises, answers for even-numbered exercises, and sample chapter tests and answers Illustration of Some Key Features

Examples: Since many students learn by example, a large number of detailed and well-illustrated examples are used throughout the text.

Exercises: To reinforce key concepts for students, we have provided a large variety of well-illustrated exercises.

Chapter End Matter: A chapter summary and a chapter review are provided at the end of each chapter to review concept understanding and to help students review for quizzes and examinations.

Calculator Story Boards: Calculator story boards, including screens, are used to show students the sequence of the step-by-step operations.

Illustrations and Boxes are abundantly and effectively used to highlight important principles. TO THE FACULTY

The topics have been arranged with the assistance of faculty who teach in a variety of technical programs. However, we have also allowed for many other compatible arrangements. The topics are presented in an intuitive manner, with technical applications integrated throughout whenever possible. The large number of detailed examples and exercises is a feature that students and faculty alike find essential.

The text is written at a language level and a mathematics level that are cognizant of and beneficial to most students in technical programs. The students are assumed to have a mathematics background that includes

one year of high school algebra or its equivalent and some geometry. The introductory chapters are written so that students who are deficient in some topics may also be successful. The material in this book should be completed in three or four semesters or equivalent and serves as a foundation for more advanced work in mathematics. This text is intended for use in Associate Degree programs as well as ABET (Accrediting Board for Engineering Technology) programs and BIT (Bachelor of Industrial Technology) programs.

Chapters 1 and 2 provide the basic skills that are needed early in almost any technical program. Chapters 3 through 8 complete the basic algebraic foundation, and Chapters 9 through 13 include the trigonometry necessary for the technologies. Chapters 14 through 17 include some advanced topics needed for some programs. Chapter 18 addresses the basics of statistics for process control. Chapter 19 (analytic geometry) completes a comprehensive mathematics background needed in many programs; some programs include this chapter at the end of the first year while other programs include this chapter at the beginning of the introductory calculus. Chapters 20 through 22 present intuitive discussions about the limit and develop basic techniques and applications of differentiation. Chapters 23 through 25 develop basic integration concepts, some appropriate applications, and more complicated methods of integration. Chapter 26 presents partial derivatives and double integrals. Chapters 27 through 29 provide an introduction to series and differential equations with technical applications.

We have included Appendix C on the basic graphing calculator and Appendix D on the advanced calculator so that faculty have the option of which, if any, graphing calculator is used in their course. Some graphing calculator uses are integrated into some of the examples in the text.

A companion Instructor's Manual with solutions for selected odd-numbered exercises, answers for even-numbered exercises, and sample chapter tests and answers is available. TO THE STUDENT

Mathematics provides the essential framework for and is the basic language of all the technologies. With this basic understanding of mathematics, you will be able to quickly understand your chosen field of study and then be able to independently pursue your own lifelong education. Without this basic understanding, you will likely struggle and often feel frustrated not only in your mathematics and support sciences courses but also in your technical courses.

Technology and the world of work will continue to change rapidly. Your own working career will likely change several times during your working lifetime. Mathematical, problem-solving, and critical-thinking skills will be crucial as opportunities develop in your own career path in a rapidly changing world.
ACKNOWLEDGMENTS

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If anyone wishes to correspond with us regarding suggestions, criticisms, questions, or errors, please contact Dale Ewen directly at Parkland Community College, 2400 W. Bradley, Champaign, IL 61821, or through Prentice Hall.

Dale Ewen
Joan S. Gary

James E. Trefzger

From the Back Cover

Technical Mathematics with Calculus begins with fundamental math concepts, including measurement, and covers algebraic concepts, exponential and logarithmic functions, trigonometry, complex numbers, matrices, statistics for process control, analytic geometry, differential and integral calculus with applications, series, and differential equations.

Features of this text include:

- Clear explanations supported by detailed and well-illustrated examples
- Calculator examples that are integrated throughout the text, including calculator screen images to illustrate the step-by-step calculator operations
- More than 8400 exercisesDetailed descriptions of real-world applications of the mathematical concepts presented in the text
- Two appendices of instructions for using graphing calculators—one for a basic graphing calculator and another for an advanced graphing calculator

This text is supported by the following multimedia:

- Companion website—includes numerous review questions for each topic covered in the text and provides immediate feedback for each section quiz
- Study Wizard—includes multiple-choice questions, a timed test option, and a glossary of important mathematical terms

About the Author
Dale Ewen, Executive Vice President of Parkland College, Illinois, (1999-present), graduated from the University of Illinois with a B.S. in 1963 and an M. Ed. in 1966. He has been the recipient of several AMATYC (American Mathematical Association of Two-Year Colleges) awards and served as the organization's President (1989-91). Dale continues to write a number of technical mathematic textbooks.

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Joyce McDonald:

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bored faster. And you have time? What did you do? Everybody has many questions above. The doctor has to answer that question because just their can do that. It said that about guide. Book is familiar in each person. Yes, it is appropriate. Because start from on kindergarten until university need this particular Technical Mathematics with Calculus, 2nd Edition to read.

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