



To the Student

In a short time you will be taking a course in calculus, an exciting subject that has application in every quantitative discipline. It provides a systematic way to describe how a change in one quantity affects another.

Engineers use calculus to determine how the force of wind and water affects the stability of a structure, how heat and fluids flow, how current affects various electronic devices, and so many other applications that they are too numerous to list. Scientists use calculus to study population problems, the effect of toxic substances on the environment, and the rates of chemical reactions. In business, the growth of the economy is determined with methods based on calculus, and future trends predicted. In fact, most statistics that are such a common part of our every-day life have their basis in calculus techniques. It is truly the keystone to quantitative study.

Calculus is not difficult to master, but it requires a solid background in, and conceptual feel for, the precalculus topics of algebra, geometry, trigonometry, and, most important, graphing. Many students seeing calculus for the first time at the university level have difficulty because they are not prepared for the way precalculus topics are used in calculus.

The material in this book will give you a solid foundation for the study of calculus. You will see many topics that are familiar, but perhaps using new notation and from a different perspective than you have seen in the past. The topics in this book are directly related to the study of calculus, and the perspective we give is the same as the one that will be used in your calculus courses. Read the material carefully and work the exercises. You will then master these concepts and have a great head start in your study of calculus.

