

Preface

The intent of this volume is to provide the reader with an introduction to calculus. The topics covered include those standard to most one-variable calculus texts, with the addition of a short introduction to the complex plane and to the techniques for solving ordinary differential equations. The text differs from most other one-variable calculus texts in that it introduces limits using limits of sequences, develops differentiation from the notion of best affine approximations, places greater emphasis on numerical techniques, and stresses the notion of the order of an approximation.

The text assumes the reader has access to, and will use when appropriate, a computer with some mathematical software. For example, a combination of R and Maxima will meet the computational needs of the problems. However, the book is agnostic as to which particular choice of software the reader prefers. Moreover, the text does not designate which problems are best worked with the aid of a computer. It should be evident from the reading, and from the computational complexity of the problem, when such a tool would be advantageous. Learning to choose the proper tools when approaching a problem, both in terms of the mathematical theory and the pragmatics of computation, is an important step in maturing as a mathematician.

The text is written in \LaTeX , and all graphics have been created in Asymptote.

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