

Inside Your Calculator: From Simple Programs to Significant Insights

Uncover the mysteries that lie within your calculator This remarkable book explores the simple internal calculator processes-algorithms and programs-that tell us, for example, that the cosine of 56° is 0.5591929035. Using carefully constructed diagrams and figures, the author effectively demonstrates how calculator keys compute powers, roots, logarithms, and trigonometry functions, while also providing insights into simple programming, the conversion between decimal and binary numeration, and perhaps most importantly, the structure of our numeration systems. Many people believe that the processes that drive calculators demand advanced mathematical concepts; however, this book proves that a minimal understanding of algebra and geometry is all that is needed to follow the step-by-step explanations of how scientific calculators work. Inside Your Calculator: From Simple Programs to Significant Insights is a complete and multifaceted exercise in critical thinking. This book features:

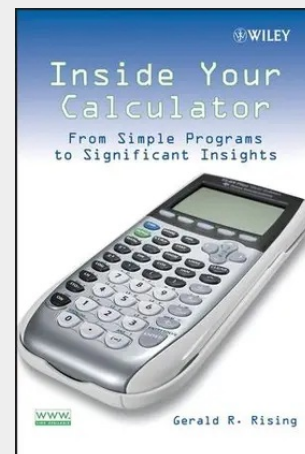
- * A detailed explanation of how to use a graphics calculator and program basic functions
- * A discussion of the history of mathematics when appropriate, which provides a foundation for further learning
- * Fundamental mathematical lessons and interesting applications of pre-calculus mathematics
- * A thorough review of the fundamentals of programming, algebra, and geometry needed to gain insight into why the algorithms work and how the results are meaningful in our lives

While the simultaneous use of a calculator is not needed to gain insight into how the algorithms work, those who do have a programmable graphics calculator can experiment with the programs presented in the book. These programs may be used on TI-84 and TI-83 calculators, and additional information for other Texas Instruments calculators as well as the Casio FX series is available on the book's related web site. As a result of over fifty years of award-winning teaching experience in both high school and college classrooms, Dr. Rising anticipates and answers potential questions from readers, and he successfully brings this subject alive in an illuminating and entertaining way. This book is therefore not only ideal for undergraduate mathematics majors as either a primary or supplemental text, but it also appeals to anyone with an interest in mathematics and its ideas.

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