

Introductory Numerical Analysis (Dover Books on Mathematics)

Anthony J. Pettofrezzo

Geared toward undergraduate mathematics majors, engineering students, and future high school mathematics teachers, this text offers an understanding of the principles involved in numerical analysis. Its main theme is interpolation from the standpoint of finite differences, least squares theory, and harmonic analysis.

Additional considerations include the numerical solutions of ordinary differential equations and approximations through Fourier series. Discussions of the relationships between the calculus of finite differences and the calculus of infinitesimals will prove especially important to future teachers of mathematics.

More than seventy worked-out illustrative examples are featured; some include solutions by different methods, showing the relative merits of a variety of approaches. Over 280 multipart exercises range from drill problems to those requiring some degree of ingenuity on the part of the student. Answers are provided to problems with numerical solutions. The only prerequisites are a grasp of differential and integral calculus and some familiarity with determinants. An appendix containing definitions and several theorems from elementary determinant theory is included.

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Introductory Numerical Analysis (Dover Books on Mathematics) Summary Details

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