Is the book simply an introduction to formal languages, combinatorics, and graph theory? By no means, and yet all three subjects are introduced along with random number generation, game playing, and the computation of mathematical constants.

Part of the charm of the book stems from a lively style, but its character comes from the desire of the authors to show how problems are attacked with the aid of a computer. The mathematical maturity demanded is that of a junior or senior mathematics major. Consequently, it could serve as a text for a valuable course for first year graduate students in Computer Science, although such a course will be opposed on the grounds that it broadens rather than deepens.

Each of the six chapters is self-contained and ends with an annotated list of references and exercises of varying difficulty. For example, (i) find a method for generating random permutations from random numbers so that each permutation should have an equal probability of occurrence, (ii) estimate (by simulation) the probability that three points chosen at random in the plane form an obtuse triangle. Lewis Carroll posed the latter problem which has a nice theoretical solution. Historical comments are woven into the text. This book should appeal to many mathematicians who admit to very little interest in Computer Science, because the intellectual difficulties in the problems addressed are so clearly brought out.

B. P.

26 [4,5].—J. ALBRECHT & L. COLLATZ, Editors, *Numerische Methoden bei Differentialgleichungen und mit Funktionalanalytischen Hilfsmitteln*, Birkhäuser Verlag, Basel, Switzerland, 1974, 231 pp., 25 cm. Price sfr. 59.—.

This volume contains papers presented at two meetings organized by Y. Albrecht and L. Collatz. The first meeting took place at the Technical University at Clausthal-Zellerfeld, Germany, from May 31—June 2, 1972, the second meeting was held at the Mathematical Research Institute at Oberwolfach, Germany, from June 9—10, 1972.

J. B. & V. T.

27 [5].—ROGER TEMAN, *Numerical Analysis*. Reidel Publishing Co., Doordrecht, Holland, and Boston, Mass., 1973, viii + 167 pp., 19 cm. Price $17.50.

This book is an updated translation of a French text which appeared in 1970. Despite its title, it concentrates on the analysis of numerical procedures for elliptic problems. The main emphasis in this study is on the use of functional analysis. The book thus contains discussions of the Lax-Milgram theorem, the Galerkin method, approximation theory, etc., and applications of these tools to finite difference and finite element methods applied to a few linear and nonlinear model problems.

In this way, the author provides an accessible, fairly elementary introduction to some of the work on theoretical numerical analysis in France during the last ten years. What the book lacks, in the reviewer's opinion, is material on the more practical aspects of elliptic equation solving. The author does describe the fractional step approach, a method which however is rarely used in real life applications. Apart from this discussion, only a few sentences are spent on the very important and interesting problems of how to handle the large systems of linear and nonlinear equations which arise in these applications.

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