

REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in brackets are assigned according to the revised indexing system printed in Volume 28, Number 128, October 1974, pages 1191–1194.

9[8.00].—SIDNEY J. YAKOWITZ, *Computational Probability and Simulation*, Addison-Wesley, Reading, Mass., 1977, xxii + 240 pp., 23 cm. Price \$22.50, paperbound \$12.50.

According to the author, the intent of the book is “to share with the reader an experimental approach to studying the facts and models of probability theory while introducing him to principles of probabilistic simulation”. For most of the book, an introduction to probability theory and a good knowledge of computing constitute an adequate background. To fully appreciate the topics covered in the last few chapters, a knowledge of such topics as time series, Brownian motion, integration theory, complex variables, and differential equations is helpful.

In the first chapter, random numbers and methods of generating pseudo-random numbers are discussed. In subsequent chapters, the author demonstrates how such pseudo-random numbers can be used to investigate many of the interesting theorems of elementary probability theory. Since these theorems deal with the large sample behavior of various functions, the simulation techniques provide an interesting insight into the phenomenon of randomness and the regularity of its behavior, when suitably defined.

Experiments on die throwing, random walks, and gambler's fortunes are clearly presented with Fortran routines. Thus, the author achieves his first goal of providing a tool for understanding probability theory. The text also introduces the use of probability theory and simulation as a tool for solving interesting and important problems. Inventory control, integration and differential equations are used as some sources of problems which are appropriately analyzed by these methods. To fully appreciate these sections, the reader should have some understanding of the nature of these problems.

To obtain full benefit from the text, the reader must not only read the material, but also must try out the suggested programs on the computer. Probability texts give proofs of theorems that can be read. This text gives simulation results related to these theorems which can be read. Only by performing this simulation can one get the full impact of what the author is attempting to do.

Many exercises are presented and the references are ample. This well-written text could be used effectively as supplementary material to an introductory probability course for students familiar with programming.

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