BOOK REVIEWS

Publishers are invited to send in their recent mathematical publications for reviewing. Reviews of books of mathematical interest are solicited from readers. Books or reviews should be sent to The Editor, *Mathematical Medley*, Department of Mathematics, University of Singapore, Singapore 10.

Constructive mathematics by M. Hayman. G. Bell & Sons Ltd., London, 1976, 76 pp.

The book consists of ten chapters on the following topics: Critical Path Analysis, Counting Machines, Flow Diagrams, Computers, Statistics, Probability, Graphs, Size and Shape, Symmetry, and Maps. These topics were selected by the author from "a course of work, taught to a non-examination fifth form in a comprehensive school, which developed from the interest of the pupils". Some subsidiary topics are included under the relevant chapters to supplement the main topics and help the reader in comprehending the main concepts and working out more easily the exercises. They include: Time, Money, Percentages, More Percentages, Binary Arithmetic.

The book is written in a way that is easy to read and simple to understand. The approach is one which emphasizes practical examples related to daily life. In this respect, mathematics is treated as one subject that is of relevance. Those who are inquisitive about the role of mathematics in various facets of life will find this book fascinating for it contains examples of interesting applicative aspects of mathematics.

The exercises are plentiful and would prove motivating to the reader in general.

One point that needs to be raised is that the book adopts the British pounds and pence as its monetary units. Also, two of the examples used are foreign to the Singaporean public, i.e. the computation of Income Tax according to British laws (under the chapter on Flow Diagrams), and football pools (under the chapter on Probability). Presumably the book is intended mainly for the British reader. However, the book is still suitable for and beneficial to other English-speaking people since mathematical concepts are universal, except for certain applications that are peculiar to different situations.

In the second chapter on Counting machines, the abacus and the desk calculator are taken as tools of computation. The four basic operations are adequately explained. In my opinion, it would have been better if this chapter is replaced by one on the electronic calculator which is fast gaining popularity over the abacus and the desk calculator.

The third chapter on Flow Diagrams is an important one and I consider it basic to all mathematical algorithms. Humans do not have the capacity to store in their mental faculties all algorithms, especially those that are long and complicated. Flow diagrams provide a means to represent vividly such algorithms on paper.

In the chapter on Statistics, there are three ways of representing data: bar chart, pie chart, pictogram. Some commercial applications of such charts may be reproduced here. Some activities are suggested for the reader to do. A brief account of the different uses of the three common averages (mean, median, mode) is included.

The diagrams showing various interesting curves such as the parabola, ellipse, cycloid and cardioid, and the fascinating patterns based on principles of symmetry should make an unforgettable impression on the reader.

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Correlation and regression — as related to statistics, prepared by the School Statistics Panel, U.K. W. Foulsham & Co. Ltd., New York, Toronto, Cape Town, Sydney, 1969, 48 pp.

This is a small book, focusing on correlation and linear regression of bivariate distributions, written by a team of school teachers.

The reader is gently taken by the hand and introduced to correlation and regression. There are many illustrations to illuminate these topics as well as many problems for the reader to exercise with. The level is within the capability of pre-university students taking statistics or economics.

Teachers who intend to use the book may like to consider the following points which are not raised in the book.

(1) The use of simple calculators can eliminate much of the labour of computation in statistics. Although it is wise to work the first few problems manually to get a feel of the numbers involved, subsequent similar problems should allow recourse to a calculator.

(2) The availability of calculators also raises the question of whether simplified statistical procedures should be adopted. For example, before the advent of calculators and computers, it was easier to apply Spearman's rank correlation coefficient in some cases rather than the more lengthy but precise Pearson's product moment correlation coefficient. With the easy handling of numbers provided by calculators, learning of shorter but less precise formulae may not be of much value other than for the sake of interest.

(3) Pre-university students who have undergone or are taking the Computer Programming Course may be given programme-writing exercises for computing correlation co-efficients, regression lines, etc.

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