Let $p(x)$ be a polynomial with integral coefficients, and let x_1 be an even integer and x_2 an odd integer. If $p(x_1)$ and $p(x_2)$ are both odd, prove that $p(x) = 0$ has no integral roots.

Now $p(x) = a_0 + a_1 x + \ldots + a_n x^n$ where $p(x_1)$ and $p(x_2)$ are both odd for an even integer x_1 and an odd integer x_2. Let $x_1 = 2r$ and $x_2 = 2s + 1$. Using the binomial theorem, we see that

$$p(x_1) = a_0 + 2k, \quad p(x_2) = a_0 + a_1 + \ldots + a_n + 2m$$

for some integers k and m. Hence a_0 and $a_1 + \ldots + a_n$ are both odd. This fact(together with an application of the binomial theorem) implies that $p(x)$ is always odd for any integer x and so cannot be zero.

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BOOK REVIEWS

Mathematical Structures. By H. T. Combe. Ginn, London, 1971, v + 201 pp; $12.

This well-written book provides an elementary approach to a number of mathematical structures such as groups, rings, fields, vector spaces and Boolean algebra, but the emphasis is on groups. There is also a chapter on the number systems and one on applications of Boolean algebra.

The author assumes that the reader has a knowledge of the basic set operations and the notations and compositions of functions, as well as, an acquaintance with the simple matrix operations. Since the knowledge assumed is nothing more than the basic definitions, which can be found in almost all modern secondary school textbooks, the book should be easily understood by all those who have done a few years of "Modern Mathematics" in a lower secondary school.

There are numerous exercises some of which are questions set by examining bodies in the United Kingdom. Answers to most questions are provided. Although the book will be most useful to H.S.C. students studying "Modern Mathematics", it

will also be profitable reading for first or second year
university students, who are not specialists in mathematics.

Peng Tsu Ann

New Mathematics for Secondary Schools. By Lian Sek Lin and
  Hector Chee Kum Hoong. Jacaranda Press, Queensland, Aust-
  ralia,, 1972. Book 1, viii + 258 pp.; $5.20; Book 2,
  viii + 237 pp., $5.20; Book 3, v + 263 pp., $5.60; Book 4,
  v + 326 pp., $5.80.

   This series of four books for secondary schools is an
adaptation from Entebbe Mathematics Series (Preliminary
Edition) published by Education Development Centre, Mass.
U.S.A. It is not only planned to cover all materials
included in the Alternative C syllabus and other similar
syllabi of various G.C.E. 'O' level examinations, but is
also geared to the latest S.I. units. The use of the lang-
uage of sets is emphasised throughout the series. This is
an important feature of modern mathematics in comparison
with the traditional one. Many new contents of mathematics
are carefully introduced. They include transformations.,
functions, linear programming, logic, trigonometry, vectors,
matrices, probability, statistics, etc. Students are
prepared for a broad base of mathematical training so that
they may find mathematics exciting and rewarding. Meanwhile,
the practical aspects of mathematics which are useful for
everyday purposes are not neglected.

   On the whole, the series is highly recommended for the
study of mathematics at G.C.E. 'O' level, though the teaching
materials for students of diverse interests and capacities
have to be suitably adjusted and arranged. The authors of
these books have done well in their modern approach to
mathematics.

Kho Tek Hong

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50451, Ext. 344).