

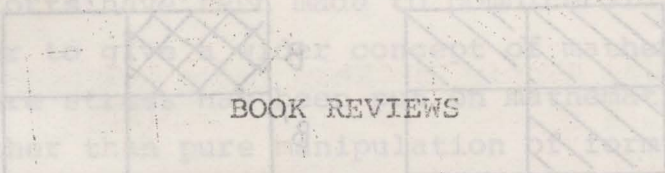
Correction to the solution of P2/73 (this "Medley"  
Vol.2, No.1, p.20).

Find the largest number that can be obtained as a  
product of two positive integers whose sum is a given positive  
integer  $s$ .

The solution as presented is only a partial solution  
(when  $s$  is even) as pointed out by Dr. Louis Chen and the  
Proposer. The complete solution is as follows.

Let  $p = ab$ ,  $s = a+b$  where  $a$  and  $b$  are positive integers.  
Then  $4p = s^2 - (a-b)^2$ . Since  $s$  is given  $p$  is greatest when  
 $(a-b)^2$  is smallest. If  $s$  is even, then we can choose  $a$  to  
be equal to  $b$ . If  $s$  is odd, then  $a$  and  $b$  are of different  
parity and so  $(a-b)^2$  is at least 1. Hence the largest value  
of  $p$  is  $s^2/4$  or  $(s^2-1)/4$  according as  $s$  is even or odd.

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BOOK REVIEWS

Books for review should be sent to Dr. L. Y. Lam, Department  
of Mathematics, University of Singapore.

An Introduction to Sets. By A.P. Kearney. Blackie, London,  
Glasgow, 1965, 159 pp. 85 pence.

Sets and Switches: Using the Karnaugh Map Technique!. By Alan  
Sherlock and Timothy Brand. Chatto & Windus Educational,  
London, 1973, 117 pp. 70 pence.

In Kearney's book, the concepts of sets, equivalent sets,  
operations on sets (intersection, union, difference and  
complementation) are introduced within some 45 pages with the  
help of numerous Venn diagrams and illustrative examples.

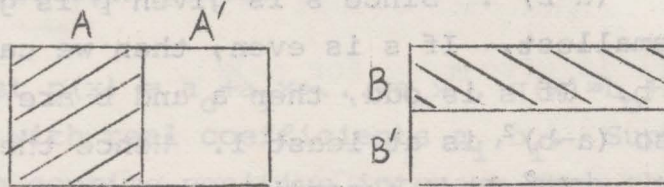
The author also mentions briefly the real number system: the  
rational numbers and irrational numbers, and in particular,  
the integers. Using the new terminology, he describes the  
graphs of inequalities, relations and functions.

In the latter part of the book, the author attempts to  
present abstract proofs of set identities. He also mentions  
the alternative method of proof by "membership" (or "in-out")  
tables. Finally there are some brief remarks about the laws  
of Boolean algebra.

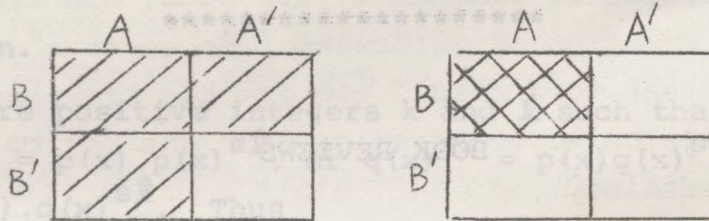


The book contains a sufficient number of exercises (with answers) with which to test the reader's understanding. There is also a useful summary of symbols used.

Sets and Switches concentrates on the basic ideas of union, intersection and complementation of sets. Its objective is to develop the pupil's manipulative ability with Boolean functions. Instead of using the usual Venn diagrams to visualize sets, the book uses "Karnaugh Maps" (or "Veitch Diagrams"). Thus the sets A and B are represented as



and  $A \cup B$ ,  $A \cap B$  respectively as



Karnaugh Maps appear to constitute a more systematic way of tabulating a set of given information. They are subsequently stripped of their pictorial representation and reduced to a "matrix" form. The simplification of Boolean functions is then a matter of formal manipulation with these "matrix" forms. Its application in "switching" circuits is amply demonstrated. In fact, Karnaugh Maps were first invented in 1952 to simplify truth functions and logic circuits. The authors also claim that the work in this booklet has been well tried (over three years) with boys aged 11 - 15.

Y. K. Leong



Contemporary School Mathematics. Vol. 1 & 2 by A.J. Sherlock,  
H. D. Ellerby and Lim Nai Tian. Vol. 3 & 4 by T. E. Brand,  
D. W. M. Wade and Lim Nai Tian. Federal Publications,  
Singapore, 1972. Vol. 1 \$5.10, Vol.2 \$5.20, Vol.3 \$5.60,  
Vol.4 \$5.60.

This series of four books for secondary schools is the South East Asian edition of Contemporary School Mathematics, and is <sup>in</sup> S I units. It is not only planned to cover all materials included in the Alternative C syllabus but it is also useful to students offering Alternative B syllabus. Some of the familiar topics in Alternative B syllabus have been enlivened with fresh ideas and new concepts. In order to keep in alignment with science and mathematics texts at Pre-U level, the index notation (e.g.  $m s^{-1}$  for metre per sec.) has been adopted throughout the course. Attempts and great efforts have been made to combine old and new ideas in order to give a wider concept of mathematics to students. More stress has been put on mathematical concepts and logic rather than pure manipulation of formulae; nevertheless, ample number of exercises have been put in to ensure that the students will retain the basic manipulative skill of mathematics. Many new topics including sets, vectors, matrices, statistics and logic are introduced.

On the whole, this series is very suitable as basic texts in schools. The authors of these books have been successful in integrating the new and old concepts in mathematics. The students may find the learning of mathematics exciting and extremely rewarding.

Lim Chee Lin

Discovering Mathematics. Metric edition. By Harry Tan,  
Chang Kwong Ming, Eng Soo Peck. Macmillan, Singapore.  
Bks. 1 & 2, 1973, Bks. 3 & 4, 1974, Bk. 1, Pts 1 & 2  
\$2.30 each, Bk.2 \$3.85, Bk.3 \$4, Bk.4 \$4.45, Bk.5 \$4.45,  
Bk.6 \$4.70.

The series "Discovering Mathematics" (metric edition) is in line with the mathematics syllabus published by the



Ministry of Education, Singapore.

The approach on teaching concepts and ideas is well geared upon. However, the amount of exercises in most cases, is not sufficient. Furthermore, the problems should be improved upon by wording them in more varied ways.

Bk.1, Pt. 1 & 2, and Bk.2 would be better in the form of worksheets rather than as textbooks.

The following topics of the syllabus should be included or further developed upon.

Bk.1, Pt. 1 & 2 (Pr. 1)

Comparison (Topic 2) Situations on the use of the following should be included: not the same, more and less, wider and narrower, widest and narrowest, taller and shorter, tallest and shortest.

Pattern forming (Topic 3) This topic has been left out in Bk 1, Pt. 1 and 2.

Numbers 1 to 10 (Topic 4) The concept is well-covered. However, there are insufficient exercises on position of numbers, (e.g. 5 is between 4 and 6, 3 is bigger than 2 and 1), and arrangements in ascending/descending order.

Addition and subtraction of numbers 1 to 10 (Topic 5) The concepts are well-covered. However, exercises on "number stories" should be included. More exercises should be on arithmetic sentences like  $\square - 8 = 11$ ,  $12 + 6 = \square$  or  $14 - \square = 9$ .

Measurement of weight, time, length, capacity and volume (Topic 11) With regard to the measurement of time, it is required by the syllabus to master the use of the standard units of time, viz. hours and minutes. However, the text books concentrate on telling the time. Telling the time is one way of approach to make children aware of how time is measured. However, this is not followed up with the introduction of hours and minutes.



Book 3 (Pr. 3)

More about multiplication (Topic 2) The building up of 11, 12, 13, 14 and 16 times tables is not necessary at this stage.

Measuring capacity (Topic 4) The units gallons, quarts and pints are not relevant at this stage. It would have been better to have concentrated on giving children a clear concept on the use of litre as a standard unit. In line with this, perhaps, the unit cubic centimetre should not be introduced to Primary 3 children as yet.

Topic 5 Book 3 has not provided allowance for Topic 5 of the syllabus which is area and perimeter (through irregular shapes).

Book 4 (Pr. 4)

Numbers up to one million (Topic 7) Exercises on place-value are missing.

Decimal fractions (Topic 12) There is insufficient groundwork on the introduction to decimal fractions. Perhaps examples of arranging a group of decimals in order of size, representing decimals on graph paper, etc. should be catered for.

Decimal fractions (+ and -) (Topic 13) There is insufficient variety of exercises, e.g.  $0.3 + 3.9 = \frac{3}{10} + \frac{39}{10}$ , and  $\square - 10.7 = 5.36$ . Furthermore, problems have not been included in this chapter.

Decimal fractions ( $\times$  and  $\div$ ) (Topic 14) Problems have not been included in this chapter.

Capacity (Topic 15) It is not required by the syllabus at this stage to introduce the millilitre.

Squares and square roots (Topic 18) Problems such as  $\sqrt{3^2 + 4^2}$ ;  $\sqrt{9^2 + 12^2}$ ;  $2^2 \times 3^2 = 6^2$  (True or False) are usually introduced later, perhaps in Primary 5. In Primary 4 only the groundwork is to be laid. Hence, this section is not very relevant for an average or below



average class. However, it is challenging to the brighter students.

Bk.5 and 6 (Pr. 5 & 6)

The grading of exercises in these two books which must be treated as one unit, is systematic and well-spaced out to cover the two-year syllabus thoroughly. However, more varieties of sums should be provided to enhance the ideas and concepts covered throughout the primary school programme.

Wan Fook Neo

Books received

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|---------------------|---|
| Alliott and Adair:  | Ways to Mathematics. Longman                                  |
| Godman and Talbert: | Additional Mathematics Pure and Applied (S.I. Units). Longman |
| R. Loveday:         | Practical Statistics. C.U.P.                                  |
| R. Loveday:         | Statistical Mathematics. C.U.P.                               |
| L. K. Turner:       | Advanced Mathematics — A Unified Course Book 1. Longman       |

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Interesting similarities

Let  $r = \frac{\text{mass of a proton}}{\text{mass of an electron}}$

By experiment,  $1836.1 \leq r \leq 1836.12$

By calculation,  $6\pi^5 = 1836.118$

— Via T. A. Peng