

"COUNTDOWN TO MATHEMATICS" Vols. 1 and 2.

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My overall impression of these two volumes on pre-calculus Mathematics is that they are excellent texts. They are primarily aimed at *in-tending* Open University students. Volume 1 concentrates on "basic skills and techniques in arithmetic, algebra, graphs and statistics" for courses in "the Social Science, Science, Education and Technology disciplines". Volume 2 continues the development of skills and techniques in these areas and introduces some of the basic ideas of geometry and trigonometry. Both volumes are intended to inculcate confidence in elementary mathematical skills and techniques particularly in manipulative skills. They further help to develop basic skills for self-study.

Both volumes present a number of Modules, each dealing with an individual area of basic Mathematics. The Module is then subdivided into five sections each prefaced by some diagnostic questions which enable the student to discern which, if any, of the sections may be omitted with confidence. Each section ends with a plentiful supply of exercises which coupled with the material in the section will help develop mastery of the particular topic treated.

The presentation of the content is informal, with many of the ideas illustrated <sup>at</sup> or/least light-heartedly introduced by a liberal use of cartoons which are entertaining if not always informative. Many of the illustrative examples used in the text are both topical and relevant to real-life situations and/or to some of the basic disciplines of Science and Economics e.g. household budgets, level contours on maps, temperature conversion formulae, speed calculations (here however the authors could more consistently have used the SI unit system) etc. In relation particularly to the arithmetic sections I liked the authors' presentation of how to first obtain rough estimates in any calculation before proceeding to the detailed calculation, and also their encouragement to the student to do so. In addition, use of the pocket calculator is both encouraged and taught through examples accompanied by cartoon illustrations and step-by-step details of keys to be used.

Pictorial representations of algebraic manipulations and graphical, histogram, bar-chart and pie-chart representations of data are clear, informative and liberally used throughout the text. In the particular section on "Data in Tables" I like the way in which the authors present data in tabular form and clearly teach the student how to read information from Tables of Figures such as reciprocals, square roots etc.

In a number of areas, which were otherwise well presented, the authors could, I think, have included some further useful material without having to overly extend either the student or the size of the volumes. The section on simultaneous equations could easily have included something on  $3 \times 3$  systems rather than just  $2 \times 2$  systems; the Logarithm section which deals extensively with base 10 logarithms and includes some other-base logarithms could beneficially have included mention of natural logarithms; expansion formulae for  $\sin(A + B)$  and the like are omitted from the trigonometry section; and there is nothing involving elementary complex numbers which would have extended the otherwise excellent treatment of roots of quadratics to other than real roots. These however are minor shortcomings in what are in my opinion two excellent volumes.

In the light of our experiences here in University College, Cork in recent years, many of our First Year Science students would benefit enormously both in their Mathematics courses and particularly, in their Experimental Physics and Chemistry courses/using these texts to review and develop confidence in using material which they should have already mastered before entering University.

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