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Progress to Higher Mathematics, by Mary Teresa Fyfe, Andrew Jobbings and Kitty Kilday. Pp. 106. £8.00 (pbk). 2007. ISBN 978 0 9555477 0 6 (Arbelos).

This book addresses an issue faced as much by students progressing from GCSE to A level in England as those progressing towards Scottish Higher Mathematics (for whom this book is explicitly written). I am not qualified to assess its value for Scottish pupils, but those south of the border will certainly benefit from it. GCSE provides an inadequate basis for beginning AS Mathematics, not because of its explicit content but because it plays down the necessary levels of algebraic and other skills — a fact that QCA have consistently chosen to ignore. Many teachers reading this review will have had experience of enthusiastic and hard-working students who are perfectly capable of understanding the new ideas in AS Mathematics but who struggle to solve questions because their skills are weak. This short book (81 pages of questions and 19 of answers) provides a substantial number of questions covering many of those skills. Alongside standard examples of the sort that can be found elsewhere are questions such as these:

expand and simplify $\left(k^2 + \dfrac{1}{k}\right)^2$;

write as a simple fraction $\dfrac{2 - \frac{3}{r}}{4 + \frac{1}{r}}$;

solve $p + \dfrac{3}{p+4} = 0$;

find the value of a for which (2, 1), (4, 5) and (a, 11) are collinear;

and a particularly valuable chapter involving writing down the equation of a quadratic or cubic equation from its graph and axis intersection points. There is almost no accompanying text; each exercise is preceded by a box labelled ‘In this exercise you will learn how to . . . ’, with key points highlighted but without imposing particular methods when there is a choice.

Any student who is progressing to A level or, I assume, Scottish Higher, from a minimal base at GCSE or equivalent urgently needs to make time for work of this sort, and this short book is an excellent resource for such students.

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