Correspondence

DEAR EDITOR,

I suppose in these days of calculators, long division is no longer taught – no great loss, as it is a fiddly business! But, except with sophisticated calculators, algebraic long division, i.e. of polynomials, is still a useful skill. But Horner's method seems to have been forgotten: I should have set out the division [1, p. 466] thus:

1	1	−8	23	−25	1
4		4	−16	12	
−4			−4	16	−12
	1	−4	3	3	−11

four lines instead of eight!

where: (1) detached coefficients (which could have been used anyway) simplify matters considerably,

(2) changing the signs of all terms in the divisor, except the first, means that successive subtractions are replaced by single additions (which is the essence of the method),

(3) the upright stroke in the bottom line serves to separate the quotient from the remainder.

Reference

1. Charles Strickland-Constable, A simple method for finding tangents to polynomial graphs, *Math. Gaz.* **89** (November 2005) pp. 466-467.

Yours sincerely,

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DEAR EDITOR,

The review by S.C. Coutinho in the November 2005 *Gazette* of the book on Alan Turing, and in particular his mention of Turing's work on mathematical biology, coupled with Claire Irving's article in the same issue on knitting the real projective plane brought back memories for me. Shortly before his death, at a time when I was a research student at Manchester University, Turing announced that he would give a series of lectures to staff and postgraduates on mathematics in biology. Unfortunately, we heard only three or so of these, at which stage he had not progressed much further than D'Arcy Thompson. Attempts to find the notes I took have always failed. I fear they must have been destroyed, for at that time only a very few were aware of the significance of Turing and of his work.

I had not encountered Turing as an undergraduate, cannot recall his attending the staff research seminars and he was not frequently seen in the staff common room. Once, however, I did spot him sitting in the corner of the room knitting, using eight or so differently coloured needles and concentrating very hard. (It later appeared that he was taught to knit by Joan Clarke to whom he had been engaged for a while at Bletchley Park.) I sat by

him and he told me he was knitting a Möbius band: a far from straightforward task. Later Walter Ledermann joined us and recalled how someone in the Mathematics Department at Berlin University had succeeded in doing this some twenty-five years earlier.

My colleague, Brian Griffiths, who, when Turing came to Manchester in 1948, had just become a research student there, has other memories of Turing. In those early years he was a regular attender at, and frequently a heated contributor to, the research seminars. In 1951 he gave a series of lectures to staff and research students on computer programming – probably a world 'first'. Earlier he had started to give a third-year undergraduate course on number theory. However, his stammer proved too troublesome and the course had to be completed by Dr Ledermann. The stammer deterred Turing from giving further undergraduate courses. Although a reserved person, both Brian and I found that when approached he proved a friendly and interested conversationalist. Brian also recalls the stir in the Department when it was learned that Turing now had a machine that would solve cubic equations! Walter Ledermann, now in his mid-90s, recently told me that this or a similar machine could also play 'God save the Queen' – or possibly 'God save the King', since he cannot now recall the exact year when he was given a demonstration.

Yours sincerely,

GEOFFREY HOWSON

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DEAR EDITOR,

How the wheel turns! Alex Pathan and Tony Collyer [1] 'were fascinated by the paper [2] by Di Domenico' on a property of triangles involving area. One of them was reminded 'of some work carried out some 30 years ago' on which their paper was based.

I in my turn was reminded of what I learned at school in New Zealand some 65 years ago! I have confirmed this by consulting my much battered textbook of those days: *A New Trigonometry for Schools* by W. G. Borchardt and A. D. Perrott, London 1912. In three chapters, all of which we covered in great detail, the book develops a host of results of the type given. No doubt there were many other textbooks of that period which did the same.

References

1. Alex Pathan and Tony Collyer, Area properties of triangles revisited, *Math. Gaz.* **89** (November 2005) pp. 495-497.
2. Angelo S. Di Domenico, A property of triangles involving area, *Math. Gaz.* **87** (July 2003) pp. 323-324.

Yours sincerely,

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