

he should have been told that expansion by minors is usually the worst possible way to evaluate determinants, and he should have been urged to continue his studies at least to be able to understand the following:

For $a = 3$, let c_1, c_2, \dots, c_n be the columns of the matrix F_n . Then $c_i + c_{i+1} = c_{i+2}$ for $i = 1, \dots, n - 2$. Any one of these $n - 2$ linear dependence relations between the columns of F_n implies its singularity. What is more, by an easy induction, these relations imply that each of c_3, \dots, c_n is a linear combination of c_1 and c_2 . Hence $\text{rank}(F_n) = 2$. Which initial conditions with the Fibonacci difference equation imply $\text{rank} = 2$ is a little exercise.

Yours sincerely,

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Editor's note:

I include articles in the *Gazette* if I think that they will surprise or, occasionally, provoke a proportion of readers. With such a variety of readers, it can be difficult to pitch an article at the right level. When I accepted Graham Fisher's article, it was because I felt it would surprise and interest some readers, especially in schools. I did not want to rewrite Graham's article to the extent that nothing of his approach remained, so I merely shortened it a little by cutting out several lines of intermediate working.

I am always pleased to receive articles from non-professional mathematicians such as students and schoolteachers. This is because I want to encourage the skills of reading and writing mathematics to develop in schools and universities.

DEAR EDITOR,

I share David Singmaster's concern about the 'decimalisation of time' – page 422 *et seq.* Astronomers use an unambiguous notation eg 9d 5h 23m 19s and there is no obvious reason why this should not be adopted in mathematics. It has the advantage that by no stretch of the imagination can it be confused with decimal notation.

Alternatively, when only hours or less are concerned why not use David's colon to separate off the hours and then use the standard angular notation of ' for minutes and " for seconds? After all, times and angles are not all that dissimilar.

Yours sincerely,

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