

DEAR EDITOR,

The cylindrical projection referred to in Ian Cook's article *Great Circles* (M. G. 66 (1982) 215) is not Mercator's. In Mercator's projection, to ensure the same scale in all directions at any one point, it is necessary to have  $dy/d\lambda = -R \operatorname{cosec} \lambda$ , and hence

$$x = R\phi, \quad y = R \log \cot (\lambda/2),$$

where  $(x, y)$  are coordinates of a point on the map corresponding to co-latitude  $\lambda$  and longitude  $\phi$ .

The equation of a great circle therefore takes the somewhat more complicated form

$$2C \exp(-y/R) / \{1 - \exp(-2y/R)\} = \cos(x/R - \phi).$$

Yours sincerely,

E. H. LOCKWOOD

18 West Hill, Charminster, Dorchester, Dorset

### Lowest common denominator

DEAR EDITOR,

Suppose that I am sneaky, lazy and pedantic while a pupil of mine is sneaky, lazy and charming; you are sneaky, lazy and witty; your professor is sneaky, lazy and generous-minded. Then

$$slp, slc, slw, slg$$

have  $sl$  as their common component or, loosely speaking, their common factor; in fact, more precisely, their HCF or highest common factor.

This HCF has a connection with, but absolutely no resemblance to, the LCD—lowest common denominator—which, accepting the above analogy between multiplication and set intersection, would be  $slpcwg$ .

But media critics and social commentators have seized on LCD as *the* word to designate  $sl$  in the above context. Thus they might describe sneakiness and laziness as the lowest common denominator of the mathematical teaching fraternity. In the most typical usage the common subset of basic qualities is treated as literally unmentionable and we hear such phrases as "This sordid little programme is clearly designed to appeal to the lowest common denominator of human nature".

The reason for the popular adoption of the wrong technical term would seem to be that the highest common factor is perceived by the critic to be disappointingly *low*, and this verdict seeks expression in the word "lowest", which then drags the whole phrase LCD along with it.

Yours sincerely,

H. M. FINUCAN

Maths Department, University of Queensland, Australia 4067

## Reviews

**The real world and mathematics**, by Hugh Burkhardt. Pp 189. £5.95. 1981. ISBN 0-216-91084-6 (Blackie)

The author is based at the Shell Centre for Mathematical Education, Nottingham University, which for some years has organised courses for teachers of the 11–16 age range so that, by bringing school mathematics closer to everyday life, they may train their pupils to use mathematics on their own initiative. Up to 20% of school mathematics time may be needed for this.

There are four chapters: Learning to use our mathematics, Situations in everyday life, Tackling real problems in the classroom, and Mathematical technique for applications.