CORRESPONDENCE.

STARRED QUESTIONS.

To the Editor of the *Mathematical Gazette*.

SIR,—To follow up Mr. C. V Durell's suggestion in the *Gazette*, May 1942, p. 96, here are the two best questions that I can remember from scholarship papers of recent years.

(i) If the a's, b's, c's are positive and such that

$$a_1 > b_1 + c_1, \quad b_2 > c_2 + a_2, \quad c_3 > a_3 + b_3,$$

prove that the determinant $\begin{vmatrix} a_1, & b_1, & c_1 \\ a_2, & b_2, & c_2 \\ a_3, & b_3, & c_3 \end{vmatrix}$ is not zero.

(ii) If a, b, c, d are positive integers and $bc - ad = 1$, prove that there is no fraction x/y between a/b and c/d such that y is less than $b + d$.

The quadrangle question quoted by Mr. Durell was very good ; perhaps it would have been better still if it had been the only question in a three-hour paper with an invitation to the candidates to supply two or more solutions.

Yours, etc.,

A. ROBSON.

A TRIPOS QUESTION.

To the Editor of the *Mathematical Gazette*.

SIR,—Those who intend taking the Mathematical Tripos may be comforted in a small measure by the following problem, which is a complete question from the paper of May 1894, and is easily the simplest I have come across in such examinations. The examinee is limited to the methods of pure geometry.

" A straight line drawn through the vertex of a triangle ABC meets the lines DE, DF, which join the middle point D of the base to the midpoints E, F of the sides, in X, Y ; show that BY is parallel to CX."

Proof. (I omit a figure, which readers can readily supply). Produce ED to meet BY in T. Since D, E, F bisect the respective sides of the triangle, ET is parallel to AB. Thus since $AF = FB$, then $XD = DT$. Hence in the triangles CXD, DTB, we have $CD = DB$ (given), $XD = DT$ (proved) and the vertically opposite angles XDC, BDT are equal. Thus the two triangles are equal in all respects and $\angle XCD = \angle DBT$; that is, CX is parallel to BT.

This must surely hold the record for simplicity, being hardly up to matriculation standard. Can any of your readers suggest what the examiners expected the candidates to produce?

Yours, etc.,

RONALD F. NEWLING.

SPELLING.

To the Editor of the *Mathematical Gazette*.

SIR,—I have just finished marking the scripts of about 300 candidates aged $13\frac{1}{2}$ years—*i.e.* near the normal age for leaving school. The subject was Geometry, but I was so impressed with the amount of bad spelling of mathematical terms that I venture to draw the attention of teachers to the state of affairs. Some of the words are admittedly awkward, but the boys had presumably been using them for months at least. Efforts like " *strait* " or " *circumpherence* " pale before " *pizaygarus therom* " ; but to emphasise my

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