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(Department of Education).

LEAVING CERTIFICATE EXAMINATION, 1942.

MATHEMATICS—Arithmetic.

TUESDAY, 16*th JUNE*.—Morning, 10 to 12 noon.

Six questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Find the number of square yards in
$$\frac{6\frac{1}{2}-3\frac{1}{4}}{7\frac{1}{3}+1\frac{4}{7}} \cdot \frac{4\frac{1}{3}\times1\frac{1}{4}}{2\frac{3}{7}\times3\frac{2}{3}} \text{ of an acre.}$$

[30 marks.]

2. A rectangular field 347 yards long and 278 yards wide was sold for £1790. Find, correct to the nearest £1, the price per acre.

[30 marks.]

3. What sum of money would be sufficient to invest in a $3\frac{1}{4}\%$ stock at 99 to give an income of £650 per annum ? How much would you have to invest in that stock if you wanted an income of £650 after paying tax at the rate of 7s. 6d. in the £1 ?

[30 marks.]

4. (*a*) Show that 14,960,586 is *not* a perfect square.

(*b*) The factors 9 and 7 were used for the purpose of dividing a certain number by 63. When the number was first divided by 9 the remainder was 8 and when the quotient was then divided by 7 the remainder was 5. What would have been the two corresponding remainders if the number had first been divided by 7 and the quotient by 9 ?

[30 marks.]

5. What is a *multiple* of a number ? What is meant by the Least Common Multiple of several numbers ?
Find the L.C.M. of $1\frac{2}{3}$, $2\frac{7}{9}$, $2\frac{11}{12}$.

[30 marks.]

6. A man borrowed £500 on the 1st January, 1939. He agreed to repay the money, together with compound interest at 6% per annum, in two equal instalments, one on the 1st January, 1941, and the other on the 1st January, 1942. What was the amount, to the nearest penny, of each instalment ?

[35 marks.]

7. In a certain examination the proportion of girls to boys was 3 to 2. Of the girls 60% were examined in French and 30% in German, 20% being examined in both languages. The corresponding percentages for the boys were 20%, 15% and 12%. Find (a) what percentage of the girls took neither French nor German, (b) what percentage of the whole took neither French nor German.

[35 marks.]

8. A hollow sphere is made of metal 8·6 times heavier than water. The external diameter of the sphere is 12 ins. and the thickness of the metal is $\frac{1}{10}$ inch. Calculate (i) the volume of the metal in the sphere, correct to $\frac{1}{10}$ cub. inch, (ii) the weight of the sphere, correct to the nearest pound.

[See Tables, page 33.]

[35 marks.]

9. A vessel whose shape is that of a frustum of a cone is 20 ins. high. The diameter of its base is 24 ins. and the diameter of the top is 18 ins. Calculate the volume of the vessel in cubic feet, correct to *two* places of decimals.

[See Tables, page 33.]

[35 marks.]