

AN ROINN OIDEACHAIS

(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1944.

MATHEMATICS (Arithmetic).

MONDAY, 19th JUNE.—MORNING, 10 TO 12 NOON.

The total number of questions answered should not exceed six.

Mathematical Tables may be obtained from the Superintendent.

1. Find the cost of 87 tons, 6 cwt., 2 qrs. at £7 12s. 6d. per ton.

[30 marks.]

2. (i) Find the L.C.M. of 472 and 767.

(ii) Simplify $\frac{63}{472} - \frac{36}{767}$.

[30 marks.]

3. Find, to the nearest penny, the compound interest on £744 for 3 years at $2\frac{1}{2}\%$ per annum.

[30 marks.]

4. In finding the cost of the cloth in a roll 30 inches wide at 18s. 6d. per yard, a boy works the question as if the cost were 8s. 6d. per foot and his answer is £2 5s. 6d. too large. Find (i) the area of the cloth, (ii) his percentage error.

[30 marks.]

5. Two cars, P and Q, are travelling at 25 and 40 miles per hour respectively along a road in the same direction. P is seen passing a house A on the road at 2 p.m. and Q is seen passing a house B, which is 10 miles ahead of A, at 2.40 p.m. Find, graphically or otherwise, the time at which Q overtakes P and their distance from A at that time.

[30 marks.]

6. By using logarithms, or otherwise, find correct to three significant figures the value of

$$\frac{\pi(8.09)^2}{\sqrt{0.287}}$$

[35 marks.]

7. Find the percentage error in assuming that

(i) $1 \text{ kilometre} = \frac{5}{8} \text{ mile}$;

(ii) $1 \text{ square kilometre} = \frac{25}{64} \text{ square mile}$.

[See Tables, Page 33, and give your answer to one significant figure in each case.]

[35 marks.]

8. The rainfall in a certain district was 4 cms. How many litres per hectare is this ?

Make a rough estimate of the weight of the rain in tons per acre, if 1 cubic ft. of water weighs 62.3 lbs.

[See Tables, Page 33. A hectare=100 ares and a litre=1,000 cubic cms.]

[35 marks.]

9. Zinc and copper weigh 7 and 8.9 gm. per cubic cm. respectively. Brass contains 27% *by weight* of zinc, the remainder being copper. How much does brass weigh per cubic cm. ?

10. If a solid brass cylinder with its diameter equal to its height weighs 50 gms., calculate the diameter.

[35 marks.]