AN ROINN OIDEACHAIS
(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1933.

MATHEMATICS (Arithmetic).

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

The total number of questions answered should not exceed *six*. (Candidates should see that answers to questions in excess of *six* are cancelled).

Mathematical Tables may be obtained from the Superintendent.

1. Multiply £29 18s. 7d. by 53, and divide £16,278 14s. 5d. by 187.

[30 marks.]

2. Find, correct to the nearest penny, the cost of 29 tons 3 cwt. 2 qrs. at £4 17s. 9d. per ton.

[30 marks.]

3. Evaluate $\sqrt{2}$ to 5 places of decimals. Calculate the length of the diagonal of a square of side 7·86 chains.

[30 marks.]

4. Given that a Metre = 39·37 inches, express an *are* as a decimal of an *acre*, to three significant figures.

[1 Are = 100 sq. metres; 1 acre = 4,840 sq. yards.]

[33 marks.]

5. Use squared paper to solve the following: Certain articles are bought at 3s. 6d. a dozen and retailed at a profit of 25%. Draw graphs showing the buying and the selling prices of any number of those articles, up to five dozen, and use them to find:

(i) the cost price and the selling price of 35 articles;

(ii) the gain on articles sold for 20s. 5d.;

(iii) the number of articles which should be sold to yield a profit of 3s.

[33 marks.]

6. In 1901 the population of three towns was 75,486, 39,461 and 24,299 respectively. In 1911 the average increase in population of the three was 3·5%; the first had increased by 7·5% and the second had decreased by 6·2%: what was the percentage change in the population of the third?

[33 marks.]

7. A bankrupt's assets amounted to £2,960. He owed a Bank £1,800 together with two years' Compound Interest thereon at $5\frac{1}{2}\%$ per annum, and other creditors' claims amounted to £3,475. If the Bank was paid in full, how much in the £ did the other creditors receive?

[33 marks.]

8. Write down the logarithms of 1·035, $(1{\cdot}035)^3$, 0·8364.
Use the Tables to calculate the value of:

$$\left\{ 6{\cdot}73 \times (1{\cdot}035)^3 \times 0{\cdot}8364 \right\} \div \sqrt[3]{246{\cdot}7}.$$

[34 marks.]

9. A piece of cylindrical lead piping is 20 feet in length; its external and internal diameters are 0·9 inch and 0·5 inch respectively. Find its weight, correct to the nearest pound.
What length of that piping would weigh a ton?

[One cubic foot of lead weighs 711 lbs.]

[34 marks.]