

AN ROINN OIDEACHAIS

(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS

(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1927.

MATHEMATICS.

ARITHMETIC—Paper B.

MONDAY, 20th JUNE.—MORNING, 10.30 A.M. TO 12 NOON.

Five questions may be answered.

The questions at the end of the paper carry somewhat higher marks than the others.

Tables of Measures, Constants and Formulae, and Logarithmic Tables may be obtained from the Superintendent.

1. Write down correct (i) to *four* significant figures ; (ii) to *five* significant figures the numbers :

307·05452, ·003980754

Find without unnecessary labour *by contracted methods* correct to *four* significant figures the product of the numbers.

2. Is it true that

$$\frac{2x-5}{3} - \frac{5x-3}{4} + 3\frac{2}{3} = 0$$

(i) when $x=5\frac{1}{2}$? (ii) when $x=4\frac{2}{7}$? If not true, what is the value in each case ?

(For full marks the work must be clearly set out).

3. What divisor of 5 will give a quotient equal to the divisor ?

To how many decimal places is $\frac{682}{305}$ a correct representation of $\sqrt{5}$?

4. Copper being *nine* times as heavy as an equal bulk of water, find (i) in kilograms; (ii) in lbs. the weight of a square metre of copper 3.42 centimetres thick.

Find also to the nearest florin its value at £55 per ton.

5. Make a rough estimate of the value of each of the following and then calculate the value to the degree of accuracy indicated:—

(i) The cost of 15 cwts. 2 qrs. 20 lbs. at 1s. 8d. for $1\frac{1}{2}$ stone (to the nearest shilling).

(ii) The simple interest on £5,310 for three years at $3\frac{1}{2}$ per cent. per annum (to the nearest florin).

6. £265 is divided amongst A, B, C so that their shares are in the ratios 5 : 9 : 6. B then gives A 3 per cent. of his share while C gives A 2 per cent. of his: find to the nearest penny the amount each finally has.

7. The upper face of a cube of edge 3.4 inches is one inch under water in a cylindrical vessel of inner diameter 8 inches. What will be the depth of the water in the cylinder (i) when another cube of the same size is submerged; (ii) when both are removed?

8. In the course of a year a grocer buys 15 tons of sugar for £350 and sells at $2\frac{3}{4}$ d. a lb., what does he gain or lose per cent.?

The next year he buys only 10 tons at £25 per ton but sells so as to make as nearly as possible the same gross profit as before; find the new selling price per lb., correct to the nearest farthing.