

AN ROINN OIDEACHAIS

(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS

(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1929.

MATHEMATICS.

ARITHMETIC—Paper B.

MONDAY, 17th JUNE.—MORNING, 10.45 A.M. TO 12.15 P.M.

Five questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Find, without using logarithms, the value of $\frac{1}{\sqrt{73}} - \frac{1}{\sqrt{79}}$
to two significant figures. [30 marks].

2. From the formula $v = \sqrt{2} \left(\frac{Tg}{\rho}\right)^{\frac{1}{4}}$ find v , to 3 significant figures, when $T = 578$, $\rho = 13.54$, $g = 981$. [30 marks].

3. Find (i) the radius, (ii) the surface area, of a sphere whose volume is 1,000 cubic centimetres. (See Mathematical Tables for formulae). [30 marks].

4. A rectangular floor 32 feet long and 20 feet broad is covered by linoleum of area 60 square yards so that there is a border of uniform width remaining uncovered. Find the width of this border. [30 marks].

5. A train 100 yards long overtook a person walking along the line at a rate of $3\frac{1}{2}$ miles an hour and passed him completely in 10 seconds. Find the speed of the train. [32 marks].

6. Given that 7.3 is the approximation used for all numbers which lie between 7.25 and 7.35, with similar meanings for 8.49 and 32.8, find between what limits (approx.) the true value of the fraction $\frac{7.3 \times 8.49}{32.8}$ must lie, the numbers in the fraction being approximations.

[32 marks].

7. The areas of the bases of two exactly similar buckets are in the ratio of 2 : 3. Calculate the volume of the larger if the volume of the smaller is 1.24 cubic feet.

[32 marks].

8. A man buys a house, agreeing to pay for it by three equal instalments of £400, one to be paid now, the second a year hence and the third two years hence. If Compound Interest is reckoned at 6 per cent. per annum, what should be the present cash value (to the nearest pound) of the house?

[32 marks].

9. In a 100 miles motor-cycle race, A receives 25 minutes start from C and 10 minutes start from B. C overtakes B after doing half the journey, overhauls A 15 minutes later and wins the race in the nett time of 1 hour 35 minutes. The rates are assumed uniform.

Represent the race graphically and from your graph find the times taken by A and by B.

[32 marks].