AN ROINN OIDEACHAIS

(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1946.

MATHEMATICS (Arithmetic).

TUESDAY, 18*th JUNE*.—MORNING, 10 TO 12 NOON

The total number of questions answered should not exceed *six*.

Mathematical Tables may be obtained from the Superintendent.

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1. Simplify :

$$\frac{9\frac{7}{8}-7\frac{1}{9}}{5\frac{2}{9}+\frac{1}{3}} \div \frac{4\frac{1}{2}+9\frac{5}{7}}{15\frac{1}{2}-1\frac{3}{14}}$$

[30 marks.]

2. Find the cost of 69 acres, 3 roods, 35 sq. perches at £59 6s. 8d. per acre.

[30 marks.]

3. (i) An article is bought for 7s. 6d. and sold for 12s. 6d. What is the percentage profit ?

(ii) An article is sold for 19s. 4d. at a profit of 45%. What is the cost price ?

[30 marks.]

4. The population of a town for each of the three years 1943, 1944, 1945 was 5% more than the population for the year before. It was 8,400 for 1943. Find the population for 1942 and for 1945.

[30 marks.]

5. Show that 60 miles per hour is equivalent to 88 feet per second.

Two trains travel on parallel lines in opposite directions at 60 miles per hour and 45 miles per hour respectively. They take $3\frac{1}{2}$ seconds to pass one another completely. If one train is 250 feet long, what is the length of the other ?

[30 marks.]

6. Find in ounces, to 3 significant figures, the weight of 1 cubic inch of lead, if 1 cubic cm. of lead weighs 11·36 gm.

[1 lb.=453·6 gm.]

[35 marks.]

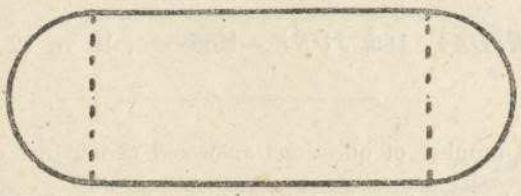
7. Without using logarithms, calculate, correct to two significant figures, the value of

$$\sqrt{(47{\cdot}08 \times 6{\cdot}952 \div 0{\cdot}894)}.$$

Verify your answer by means of logarithms.

[35 marks.]

8. A sportsfield consists of a rectangle with a semicircle at each end, as in the figure.



The length of the rectangle is twice its breadth, and the area of the whole field is 4 acres. Calculate the perimeter of the field, to the nearest yard.

[35 marks.]

9. 50 gallons of oil rise to a height of 2 ft. 4 in. in a cylindrical drum : find its internal diameter, to the nearest inch.

If the oil were poured into a second drum whose diameter is twice that of the first, to what height would it rise ?

[35 marks.]