

AN ROINN OIDEACHAIS
(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1950.

MATHEMATICS (Arithmetic).

TUESDAY, 6th JUNE.—MORNING, 10 TO 12.

The total number of questions answered should not exceed *six*.
Mathematical Tables may be obtained from the Superintendent.

1. Simplify $\frac{3\frac{1}{4} - 2\frac{1}{6}}{3\frac{1}{4} \text{ of } \frac{1}{1\frac{1}{2}}} \div \frac{1\frac{1}{6} - \frac{2}{7} \text{ of } 2\frac{1}{3}}{1\frac{2}{3} + 1\frac{1}{2} \div 3\frac{1}{4}}$ [33 marks.]

Or

1. If 1 kilometre = 0.6214 miles, express (a) 1 square kilometre in square miles, (b) 1 square mile in square kilometres, giving the answer correct to three significant figures in each case. [33 marks.]

2. Find the cost of making a road 7 mls. 3 furs. 24 pers. long at £339 13s. 4d. per mile. [33 marks.]

3. What is a prime number?

Express 736164 in terms of its prime factors and hence, or otherwise, find the square root of 0.736164. [33 marks.]

Or

3. The total surface area of a cube is 3 square feet; find the volume of the cube in cubic inches to the nearest cubic inch. [33 marks.]

4. (a) An article which costs 16s. 8d. is sold at a profit of 15% ; find the selling price.
- (b) By selling an article at 11s. 6d. a profit of 15% is made ; find the cost price.
- (c) A shop-keeper can make a profit of 15% by selling an article at a certain price. What would be his percentage profit if he allowed the purchaser a discount of 1 shilling in the pound off the selling price ?

[33 marks.]

Or

4. Find the value of $\frac{0.8316 \cdot \sqrt{43.65}}{(0.5432)^2}$ correct to two significant figures.

[33 marks.]

5. Express a speed of 10 miles per hour in inches per minute. Water flows at 10 miles per hour through a cylindrical pipe of 14 inches internal diameter into a rectangular trough 230 yards long and 140 yards wide. Find, to the nearest minute, how long it will take to raise the level of the water in the trough 4 inches.

[34 marks.]

6. Three men A, B, C, leave a certain town at the same time to go to another town 19 miles distant and they all take the same route. A walks the whole way at 4 miles per hour. B cycles at 12 miles per hour for 45 minutes after starting, and walks the remainder of the journey at a uniform rate. C sets out walking at 2 miles per hour, but completes the journey by bicycle at $6\frac{1}{2}$ miles per hour. If A and B arrive at the same time and C arrives 15 minutes later, find graphically

- (a) the speed at which B walks,
 (b) how far C walks,
 (c) how far C is from A when he begins cycling.

[34 marks.]