AN ROINN OIDEACHAIS
(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1935.

MATHEMATICS.

ARITHMETIC.

MONDAY, 17th JUNE.—MORNING, 10 A.M. TO 12 NOON.

Six questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Express a pressure of 40 lbs. per sq. inch in
   (i) tons per sq. yard ;
   (ii) kilograms per sq. cm. (to the nearest $\frac{1}{10}$ kilogram).
   [28 marks.]

2. The width of a rectangular room is $\frac{3}{4}$ of the length and the height is $\frac{2}{3}$ of the width. The decoration of the walls at 2s. 6d. per sq. yard cost £11. Assuming that doors, windows and fireplace (which had an area equal to $\frac{3}{14}$ of the total area of the walls) were not decorated, find the dimensions of the room.
   [30 marks.]

3. A man bought a horse for £75 ; he sold it on the same day and received in payment a Bill of Exchange for £82 payable at the end of six months. He at once discounted the Bill in the bank at $4\frac{1}{2}\%$ per annum. Calculate his percentage profit on the horse.
   [33 marks.]

4. A shopkeeper purchased goods at 1s. 6d. per ounce ; he paid expenses thereon amounting to 85% of the purchase price and retailed them at k francs per gram, thereby making a profit of 40% on his whole outlay : calculate the value of k.
   [£1=75 francs.]
   [33 marks.]

5. Which yields the better dividend, $4\frac{3}{8}\%$ Stock at 116 or $5\frac{1}{2}\%$ Stock at 136 ?
   A man invested £2,404, partly in $4\frac{3}{8}\%$ Stock at 116 and partly in $5\frac{1}{2}\%$ Stock at 136. His total dividend was £97 per annum : find how much he invested in each Stock.
   [33 marks.]

6. Fill in the figures which are missing in the following division sum :

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*4*)*6**5(*18
  **8
  ---
   65*
   ***
   ---
   **8*
   *7*2
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    ***
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*=missing figure.

Enter the completed division in your Answer Book.

[33 marks.]

7. An investment of £640 on January 1, 1932, is increasing in value at the rate of $x\%$ per annum, Compound Interest. It amounted to £762 5s. on January 1, 1935. Another investment of £1,200 on January 1, 1932, is decreasing in value from year to year at the rate of 4% of its value at the beginning of each year. Find (i) the value of x; (ii) in what year the two investments will be approximately equal in value.

[33 marks.]

8. A measuring-tape has become stretched so that each "yard" has become $36\frac{1}{4}$ins. long. If that tape be used in measuring the side of a square whose true length is 10 yards, find what result will be obtained for

(i) the side of the square ;

(ii) the area of the square.

Calculate the percentage error in each case.

[34 marks.]

9. A frustum of a cone is h ins. high and the radii of the circular ends are x ins. and y ins. respectively $(x>y)$. In calculating the volume of the frustum a person found the areas of the circular ends and multiplied half their sum by the height of the frustum. Show that there was an error of $\frac{1}{6}\pi h(x-y)^2$ in the result and express that error as a percentage when $x=6$, $y=5$, $h=8$.

[34 marks.]