AN ROINN OIDEACHAIS
(Department of Education.)

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1941.

ELEMENTARY MATHEMATICS (Algebra).

FOR GIRLS ONLY.

TUESDAY, 17*th JUNE*.—AFTERNOON, 3 P.M. TO 4.30 P.M.

Six questions may be answered.

All questions carry equal marks.

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1. Divide the product of $3x^2+8x-3$ and $x^2-3x-10$ by $(x+3)(x-5)$.

2. Solve the equation
$$(1-\tfrac{4}{9}x)-\tfrac{2}{3}(2x-3)=7-\tfrac{2}{3}x.$$
Verify your solution.

3. Simplify

   (i) $\dfrac{1}{x-3}-\dfrac{1}{x+3}$;

   (ii) $\dfrac{3}{x+1}-\dfrac{3}{x-1}$.

Solve the equation $5\left[\dfrac{1}{x-3}-\dfrac{1}{x+3}\right]=3\left[\dfrac{3}{x+1}-\dfrac{3}{x-1}\right]$.

4. The scale of salary for a certain post was as follows : £x for the first year and an annual increase of £y per annum for each succeeding year. Express in terms of x, y :

   (i) the salary for the third year ;

   (ii) the total salary for the first four years. Assuming that (i) was equal to £190 and that (ii) was equal to £720, calculate the values of x and y.

5. Factorise the following :

   (i) $ac-bd+bc-ad$;

   (ii) $(p+3q)(p-2q)-(p+q-1)(p-2q)$;

   (iii) $(x-3)^3-(x-3)$.

6. Find the roots of the equation
$$3x^2=4x+5$$
to *two places* of decimals.

7. A newsboy bought 40 dozen newspapers at 8d. a dozen. Some he sold at a penny each and those remaining unsold he returned, being allowed 7d. a dozen on them. That left him a profit of 11s. 3d. How many newspapers did he sell ?

8. A and B did a journey of 10 miles. B's speed was 10 miles per hour greater than A's and his time was 5 minutes less. Find A's speed.

9. Calculate the values of x^3 for the following values of x: 0, 0·5, 0·8, 1, 1·2, 1·4, 1·6, 1·8, 2.
Using those values draw the graph of x^3 from $x=0$ to $x=2$. Use the graph to find the value of x when $x^3=5$.