AN ROINN GIDEACHAIS

(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1947.

ELEMENTARY MATHEMATICS (Algebra).

FOR GIRLS ONLY.

MONDAY, 16th JUNE.—MORNING, 10 TO 12.

Six questions may be answered.

All questions carry equal marks.

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1. If $p=7x-y$ and $q=5x+y$, find in terms of x and y the value of:
   (*a*) $p+q$; (*b*) pq; (*c*) p^2+q^2; (*d*) p^3+q^3.

2. Solve the following equations :—
   (i) $5-4(x-3)=x-2(x+2)$;
   (ii) $\left.\begin{aligned} 2x-9y&=0, \\ 7x-18y&=27. \end{aligned}\right\}$

3. A has 18 shillings more than B. If A were to give 2 shillings to B A would then have three times as much money as B. How much money had each at first ?

4. Find the factors of the following :
   (i) $12x^2-x-6$;
   (ii) $2ac+bc-3bd-6ad$;
   (iii) $x(x-z)-y(y-z)$.

5. A man bought a motor car, and later sold it at a profit of 20%. Had he bought the car for £5 less and sold it for £10 more, he would have made a profit of 25%.
   What did he pay for the car ?

6. Find the roots of the equation $x^2-3x=7$ correct to two places of decimals.

7. Solve the equation $\frac{1}{x+1}+\frac{1}{x-1}=\frac{2}{x+2}$, and verify your result.

8. Write down three consecutive numbers one of which is x. Hence show: (i) that the square of the second exceeds the product of the first and third by 1; (ii) that the sum of the squares of the first and third exceeds twice the square of the second by 2.

9. Draw the graph of $y=x^2-2x-4$ from $x=-2$ to $x=+4$. Find from the graph, to one decimal place, the values of x when $y=0$.