INTERMEDIATE CERTIFICATE EXAMINATION, 1967

ELEMENTARY MATHEMATICS (ALGEBRA)

FOR GIRLS ONLY

MONDAY, 12th JUNE – Afternoon, 2.30 to 4.30

All questions to be answered.
All questions carry equal marks.

1. (a) Express $\dfrac{3 + 2x}{2} - \dfrac{x - 1}{3}$ as a single fraction.

   (b) If $x = ab + 1$ and $y = a^2 - 1$, show that $ax - by = a + b$.

2. Factorise (i) $x(b - a) - b(x - a)$;

                   (ii) $a^2 - 9b^2$.

   Show that $(x + 1)$ is a factor of the quadratic $x^2 + 4x + 3$.
   Write down another quadratic of which $(x + 1)$ is a factor.

3. Solve for x and y

   $\left\{ \begin{array}{l} x = 2y - 3 \\ \\ y = 3x - 6. \end{array} \right.$

4. (i) Find the value of k if $(k - 4) - \frac{1}{3}(k - 4) = \frac{2}{3}$.

    (ii) Find x, given the following proportion:

         $x : 8 = 2 : x$ $\left(\text{i.e. } \dfrac{x}{8} = \dfrac{2}{x} \right).$

    (iii) A child's picture book contains 12 pictures for colouring.   When p of the
          pictures have been coloured there are still $\dfrac{p^2}{2}$ pictures not yet coloured.
          Find the value of p.

5. At a raffle during a concert 1,000 tickets were sold for £11.   Some tickets were sold
at 3d. each and the remainder were sold at the rate of 5 for one shilling.   How many
tickets were sold at 3d. each ?

6. Draw the graph of $y = x^2 + 2$ when x can have any value from -2 to $+2$ inclusive.
   Mark clearly with the letter P the point on the graph which corresponds to the value
$1\frac{1}{2}$ for x.
   On a separate sheet of graph paper draw the graph of $y = x^2 + 2$ when x can take only
the values -2, -1, 0, 1, 2.