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INTERMEDIATE CERTIFICATE EXAMINATION, 1962.

ELEMENTARY MATHEMATICS (Algebra).
FOR GIRLS ONLY.

WEDNESDAY, 13th JUNE.—Morning, 10 to 12.

All questions to be answered.

All questions carry equal marks.

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1. Solve the equation

$$5(x + 2) - 2(x - 3) = 18$$

and verify your solution.

2. Solve the simultaneous equations

$$\left.\begin{aligned} 2x + 3y &= 14 \\ 5x + 2y &= 2 \end{aligned}\right\}.$$

Write down a value for x and a value for y which satisfy the equation $2x + 3y = 14$ but do not satisfy the equation $5x + 2y = 2$.

3. The roads connecting four places A, B, C, D are as shown in diagram (which is not drawn to scale). From A to B by road (through D) is 7 miles, from A to C (through D) is 6 miles, and from B to C (through D) is 12 miles. Find the distance by road from A to D.
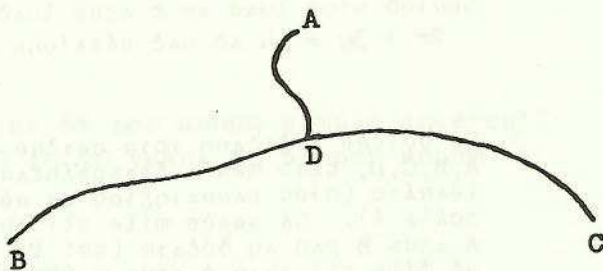
4. Factorise

   (i) $x^2 - 2x - 15$,

   (ii) $ab - ac - 3b + 3c$.

What are the factors of $x^2 - y^2$? In a right-angled triangle the hypotenuse is 5·45 inches in length and one of the other sides is 4·55 inches. Find the length of the third side.

5. Solve each of the following equations:

   (i) $x^2 - 4x = 252$,

   (ii) $(y - 3)^2 - 4(y - 3) = 252$.

6. Draw a graph of $x^2 - x + 2$ for values of x from -2 to $+3$.
   Find from your graph, as accurately as you can, the values of x for which

$$x^2 - x + 2 = 5.$$

For what values of x is $x^2 - x + 2$ less than 5?