IGCSE Transformations – 6

Oct 05 Paper 4

2 **Answer the whole of this question on one sheet of graph paper.**

(a) Draw and label x and y axes from –8 to +8, using a scale of 1 cm to 1 unit on each axis. [1]

(b) Draw and label triangle ABC with A (2, 2), B (5, 2) and C (5, 4). [1]

(c) On your grid:

(i) translate **triangle *ABC*** by the vector $\begin{pmatrix} 3 \\ -9 \end{pmatrix}$ and label this image $A_1B_1C_1$; [2]

(ii) reflect **triangle *ABC*** in the line $x = -1$ and label this image $A_2B_2C_2$; [2]

(iii) rotate **triangle *ABC*** by 180° about (0, 0) and label this image $A_3B_3C_3$. [2]

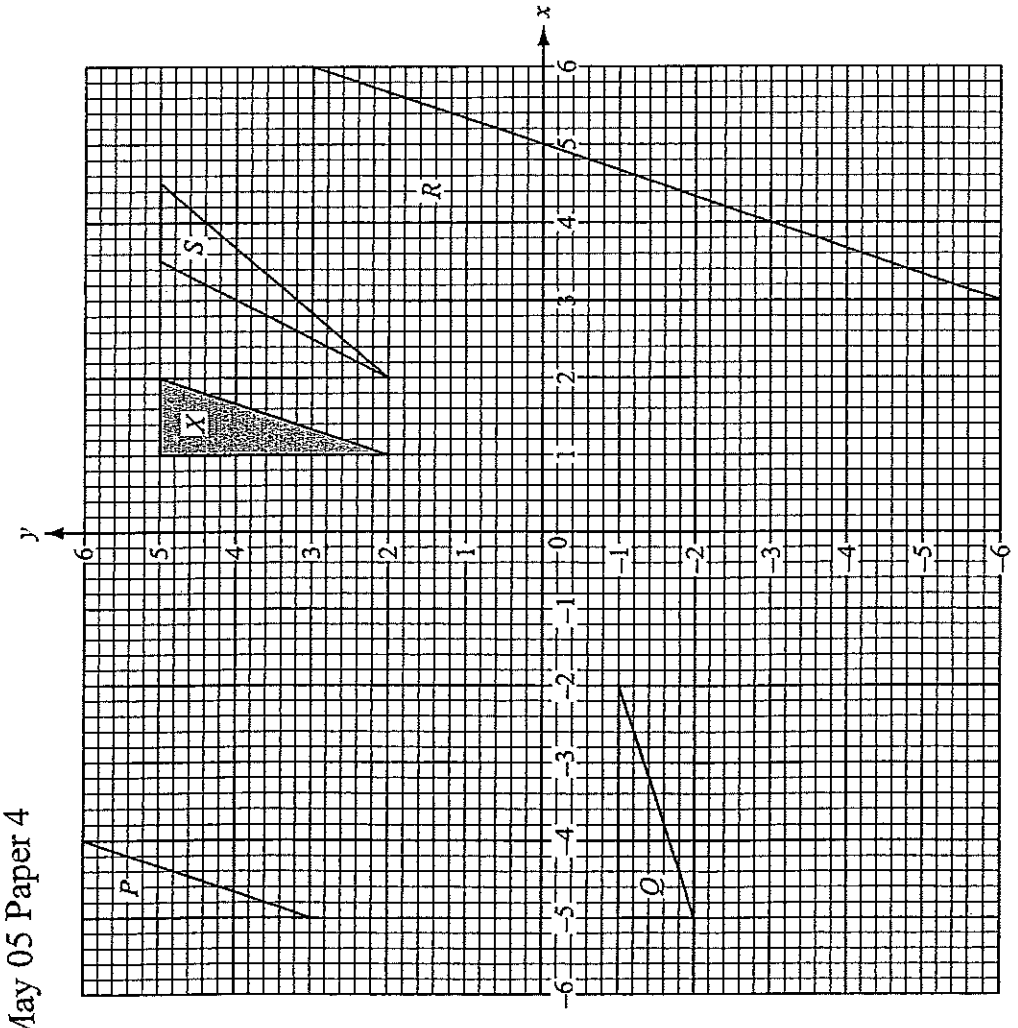
(d) A stretch is represented by the matrix $\begin{pmatrix} 1.5 & 0 \\ 0 & 1 \end{pmatrix}$.

(i) Draw the image of **triangle *ABC*** under this transformation. Label this image $A_4B_4C_4$. [3]

(ii) Work out the inverse of the matrix $\begin{pmatrix} 1.5 & 0 \\ 0 & 1 \end{pmatrix}$. [2]

(iii) Describe **fully** the single transformation represented by this inverse. [3]

May 05 Paper 4



(a) Describe fully the single transformation which maps
(i) triangle X onto triangle P, [2]
(ii) triangle X onto triangle Q, [2]
(iii) triangle X onto triangle R, [3]
(iv) triangle X onto triangle S. [3]

(b) Find the 2 by 2 matrix which represents the transformation that maps
(i) triangle X onto triangle Q, [2]
(ii) triangle X onto triangle S. [2]