6 The points with coordinates (1, 1), (3, 1) and (4, 3) are the vertices of triangle *A*.

(a) On the grid opposite, draw and label triangle *A*.

(1)

Triangle *B* is the image of triangle *A* under the transformation with matrix **M** where

$$\mathbf{M} = \begin{pmatrix} -2 & 0 \\ 0 & 2 \end{pmatrix}$$

(b) On the grid opposite, draw and label triangle *B*.

(3)

Triangle *C* is the image of triangle *B* under a reflection in the line with equation $y = 0$

(c) On the grid opposite, draw and label triangle *C*.

(1)

Triangle *A* is transformed to triangle *C* under the transformation with matrix **N**.

(d) Find matrix **N**.

(2)

Triangle *D* is the image of triangle *C* under a rotation through 180° about the point (1, 1)

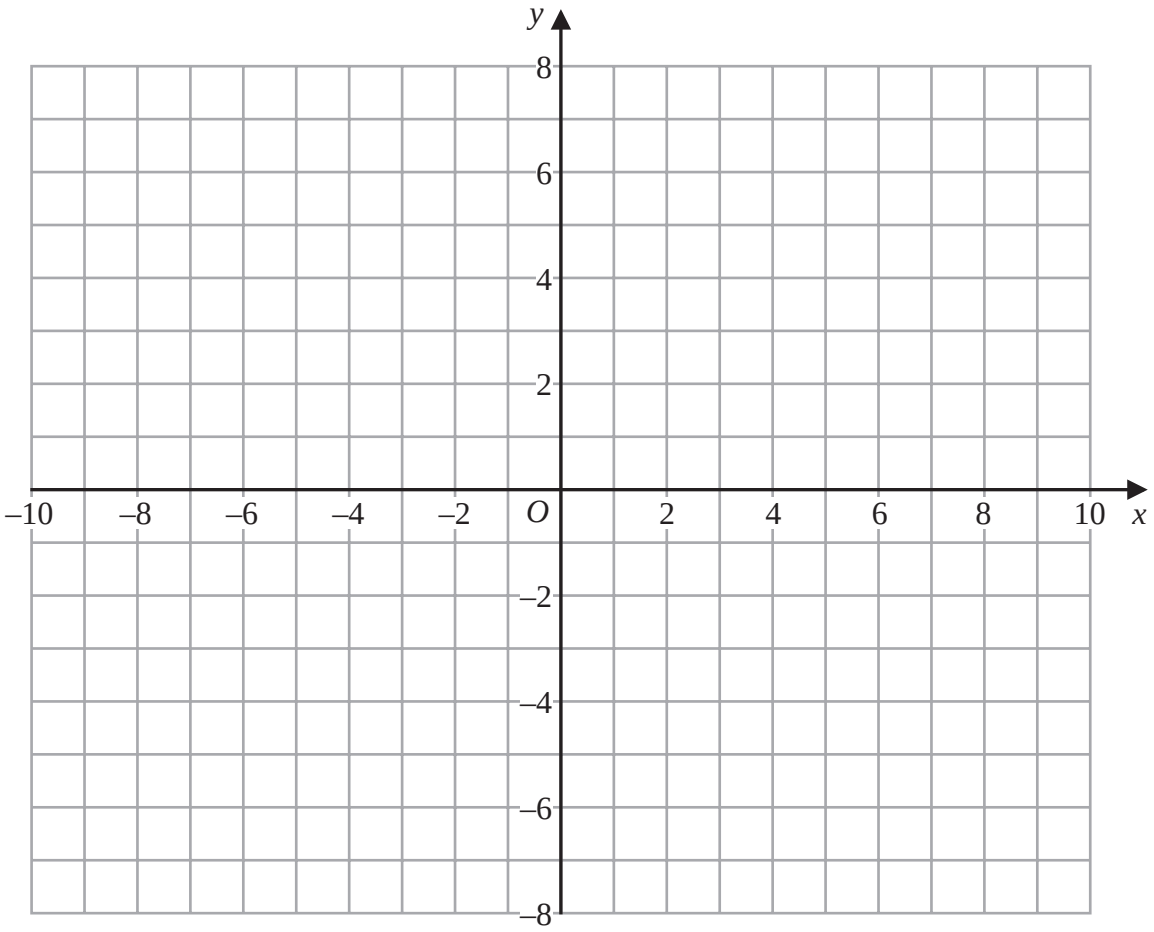
(e) On the grid opposite, draw and label triangle *D*.

(2)

(f) Describe fully the **single** transformation that maps triangle *D* onto triangle *A*.

(3)

Question 6 continued

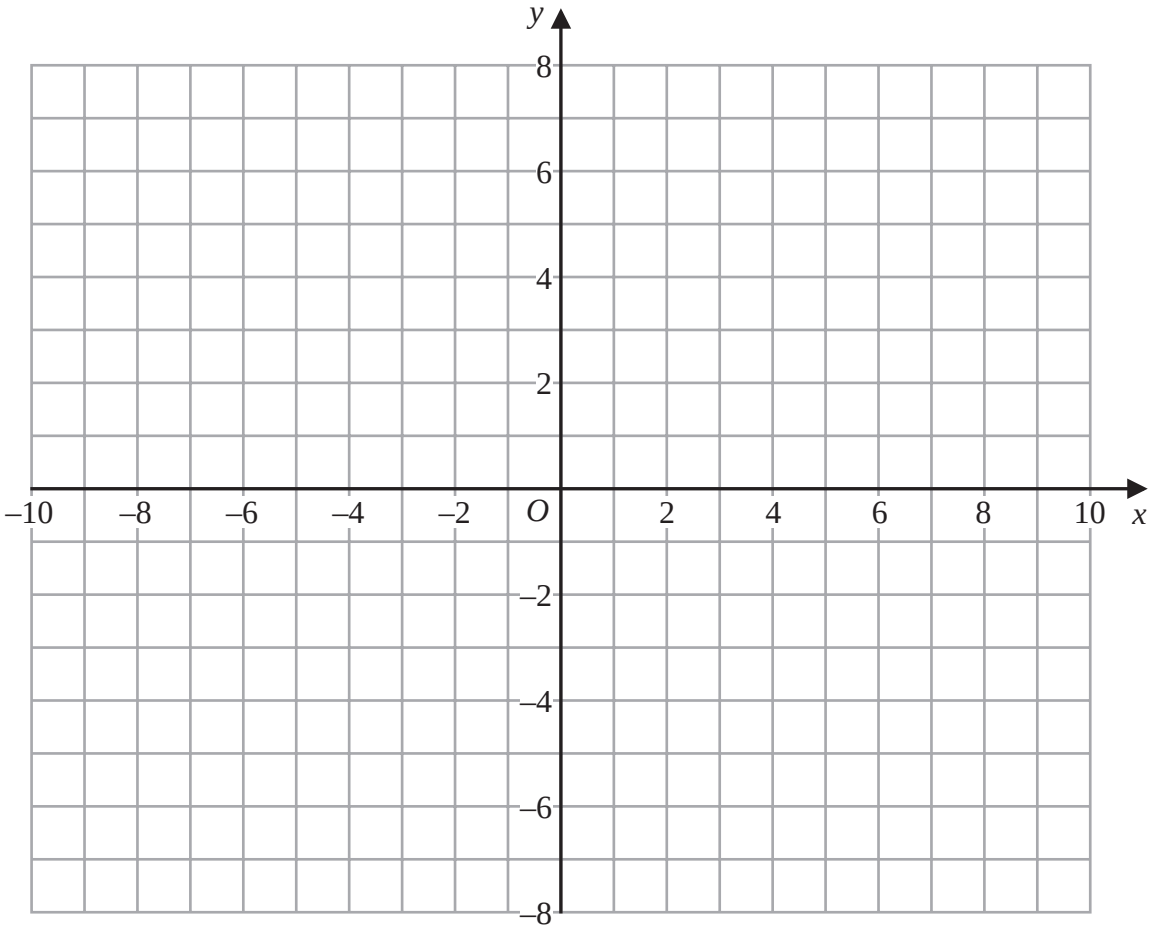


Turn over for a spare copy of the grid if you need to redraw your triangles.

Question 6 continued

Question 6 continued

Only use this grid if you need to redraw your triangles.



(Total for Question 6 is 12 marks)