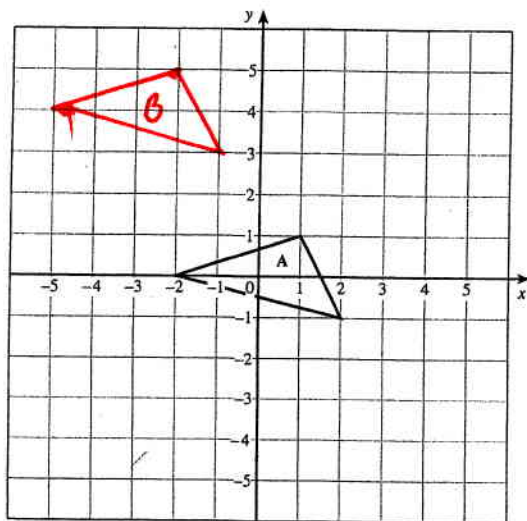


TRANSFORMATION

①

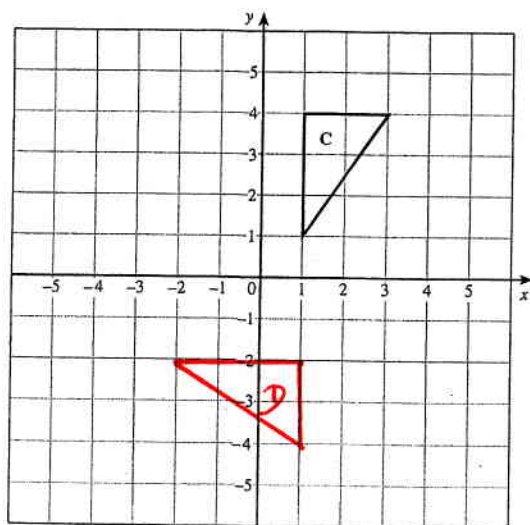
- (a) Draw the image of the triangle A after a translation of -3 units in the x -direction and 4 in the y -direction. Label the image B.

[2]



- (b) Rotate the triangle C through 90° clockwise about the point $(-2, 1)$. Label the image D.

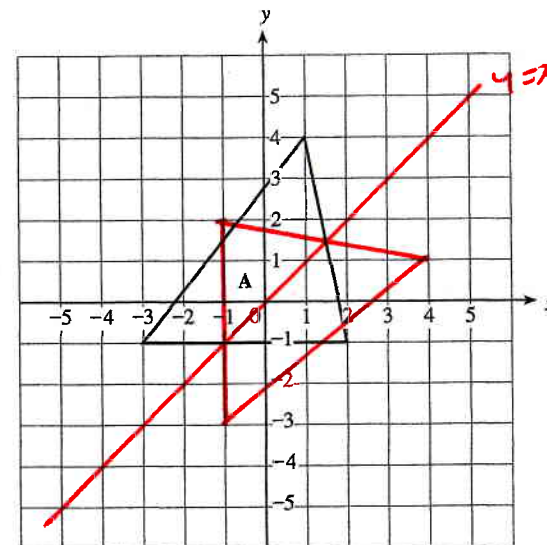
[2]



②

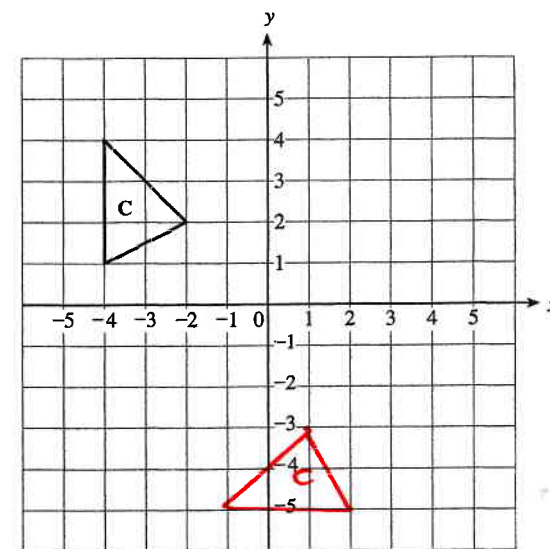
- (a) Draw the image of the triangle A after a reflection in the line $y = x$. Label the image B.

[2]



- (b) Rotate the triangle C through 90° anticlockwise about the point $(2, 1)$. Label the image D.

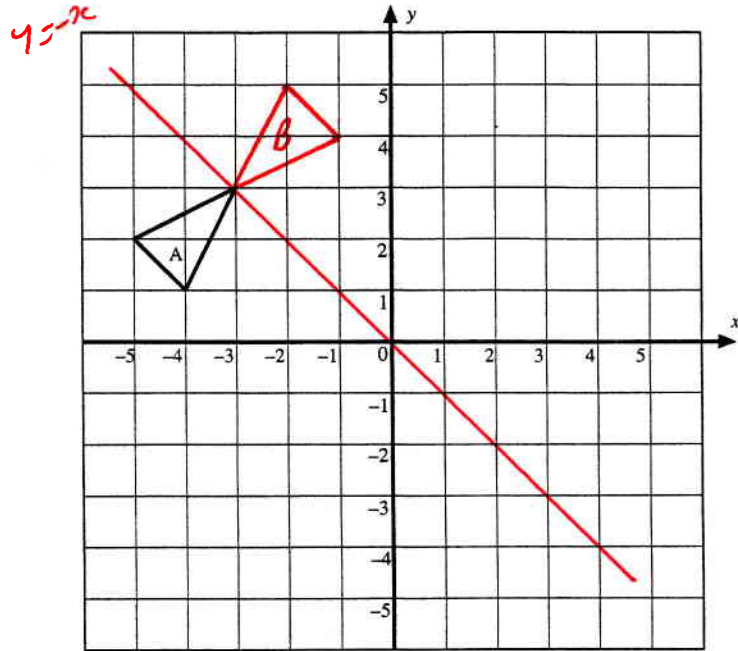
[2]



3

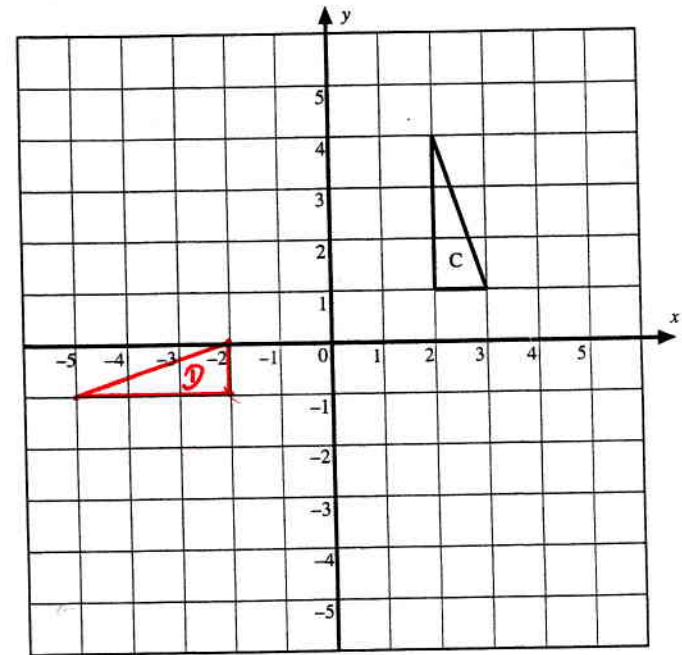
- (a) Reflect the shape A in the line $y = -x$. Label the image B.

[1]



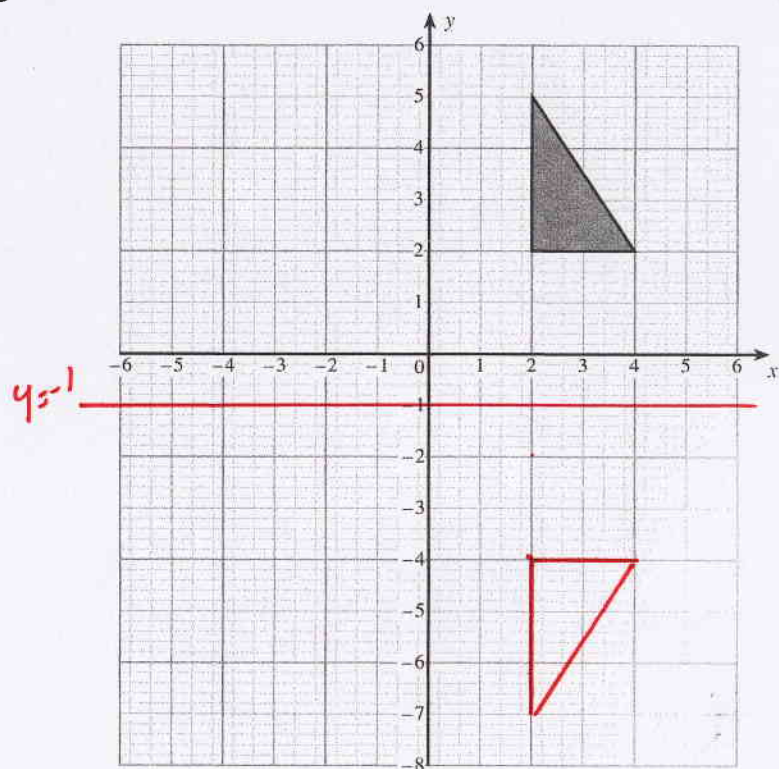
- (b) Rotate the shape C through 90° anti-clockwise about the point $(1, -2)$. Label the image D.

[2]



4

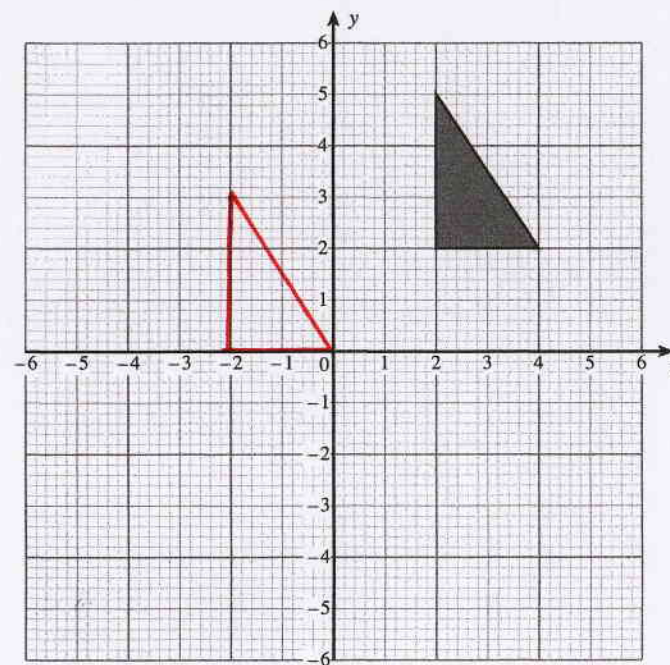
(a) Reflect the triangle shown in the line $y = -1$.



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[2]

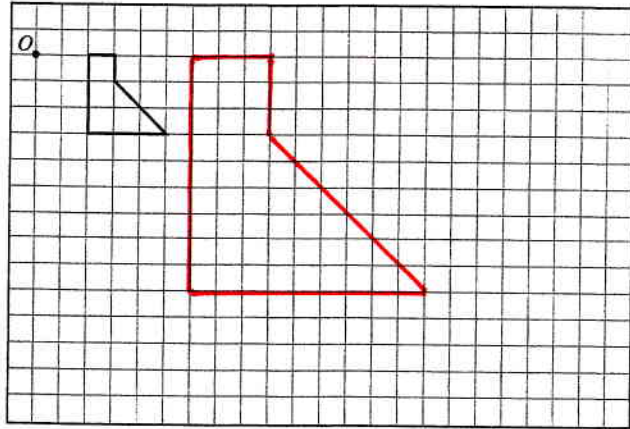
(b) Translate the triangle shown 4 to the left and 2 down.



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[1]

- 5 On the grid below, draw the enlargement of the given shape using a scale factor of 3 and centre O . [3]



Clearly showing how you obtained your answer, ESTIMATE the value of

$$\frac{211 \times 59}{603}$$

$$\frac{200 \times 60}{600} = \frac{12000}{600} = 20$$

[2]

Solve

(a) $6x = 10 + 4x$,

$$6x - 4x = 10$$

$$2x = 10 \quad x = 5$$

[2]

(b) $4(x + 3) = 20$.

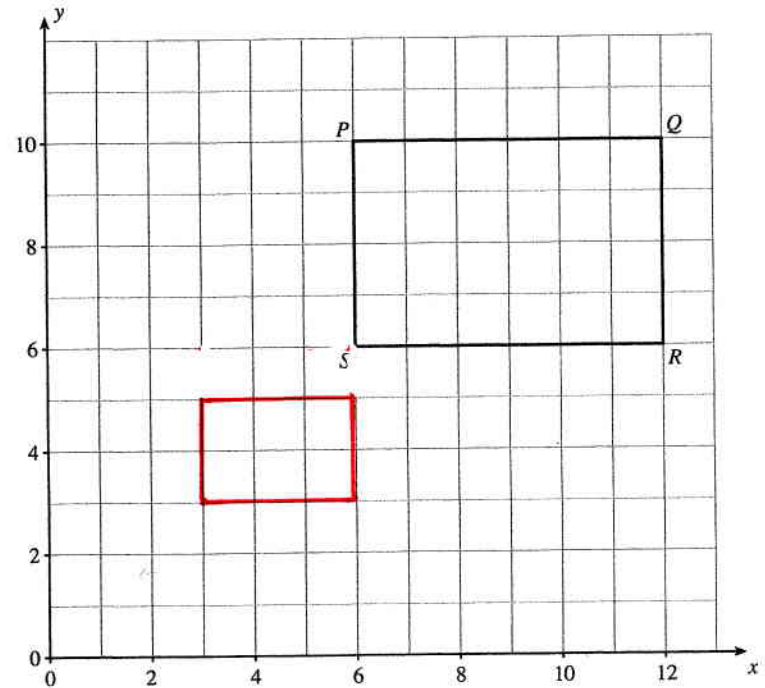
$$4x + 12 = 20$$

$$4x = 20 - 12$$

$$4x = 8 \quad x = 2$$

[3]

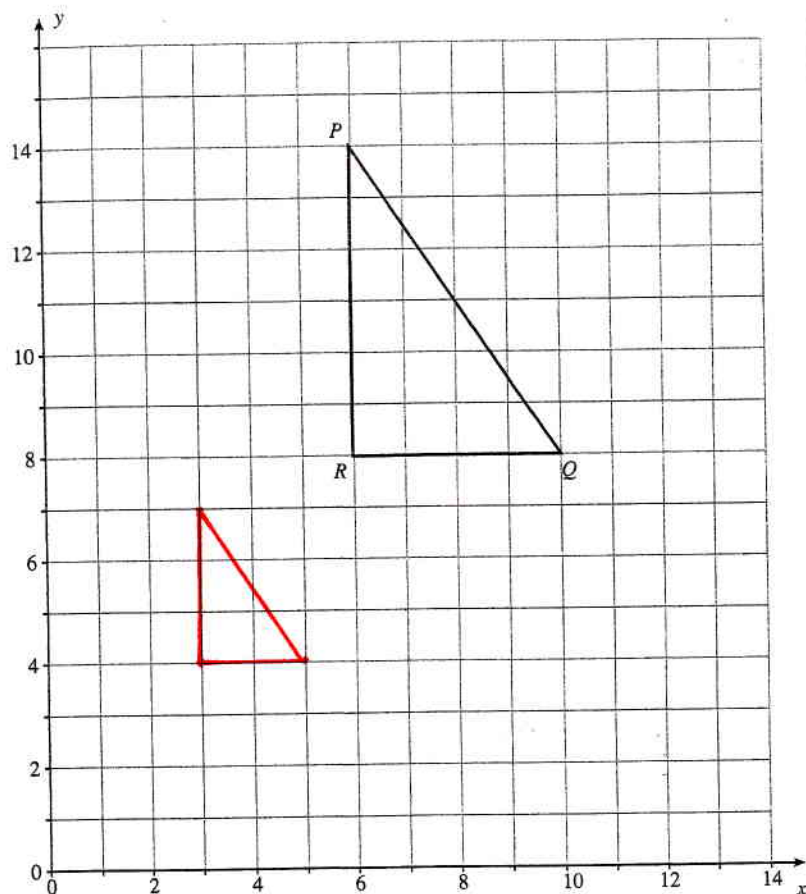
- 6 Enlarge the rectangle $PQRS$ by a scale factor $\frac{1}{2}$ using $(0, 0)$ as the centre of enlargement. [2]



7

- (a) Enlarge the triangle PQR using centre $(0, 0)$ by a scale factor of $\frac{1}{2}$.

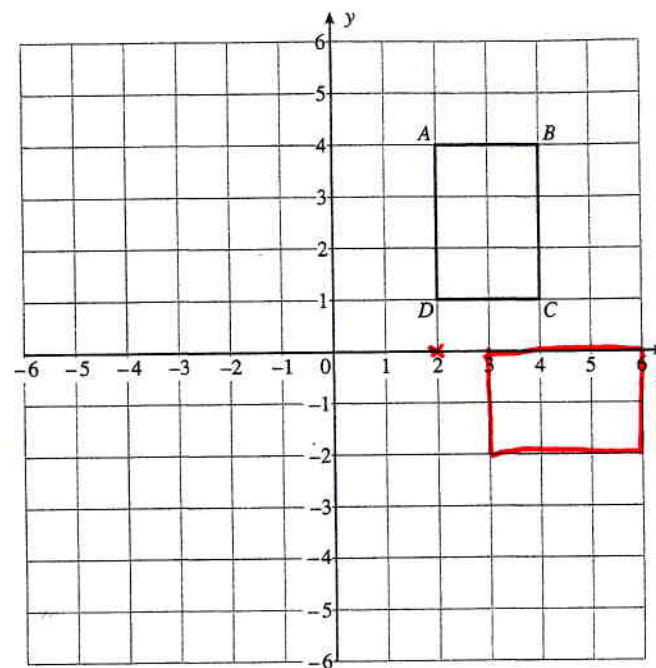
[2]



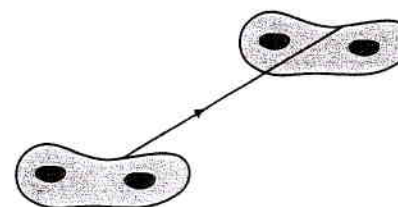
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- (b) Rotate the rectangle $ABCD$ through 90° clockwise about the point $(2, 0)$.

[2]



- (c) The diagram below shows a teacher's sketch of a transformation.



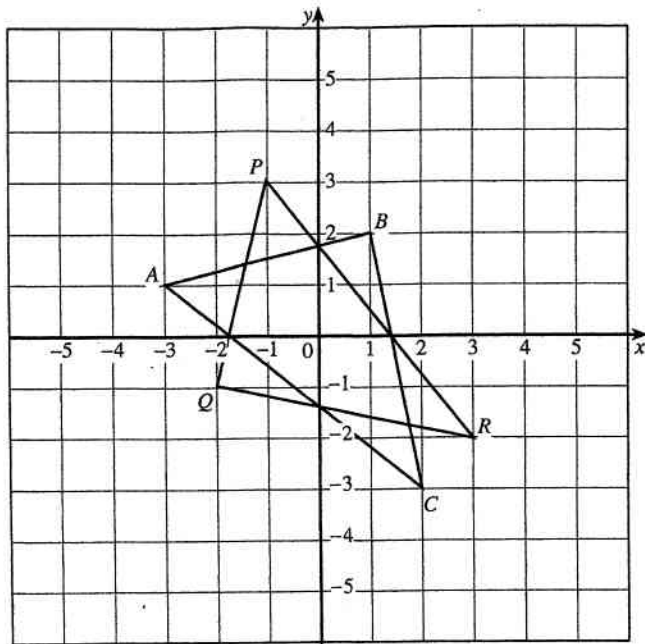
What is the name of this type of transformation?

A TRANSLATION

[1]

8

- (a) Describe fully the transformation that transforms triangle ABC into triangle PQR .

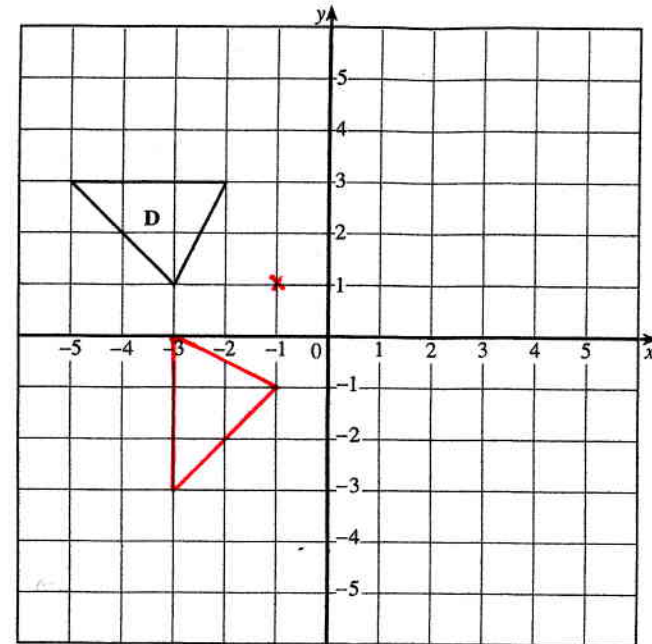


A reflection in the line $y = -x$

[2]

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- (b) Rotate the triangle D through 90° anti-clockwise about the point $(-1, 1)$. Label the image E .



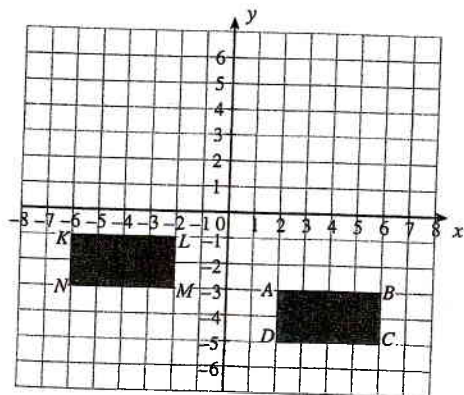
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[2]

9.

(a) Describe fully the transformation that transforms rectangle $ABCD$ into rectangle $KLMN$.

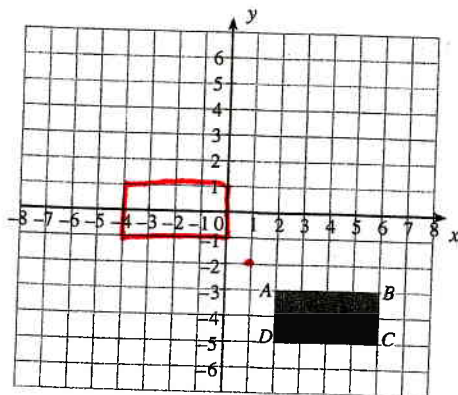
[2]



TRANSLATION $\begin{pmatrix} -8 \\ 2 \end{pmatrix}$

(b) Rotate the rectangle $ABCD$ through 180° about the point $(1, -2)$.

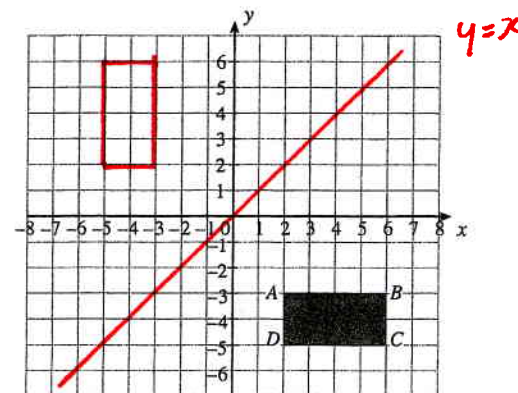
[2]



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(c) Reflect the rectangle $ABCD$ in the line $y = x$.

[2]

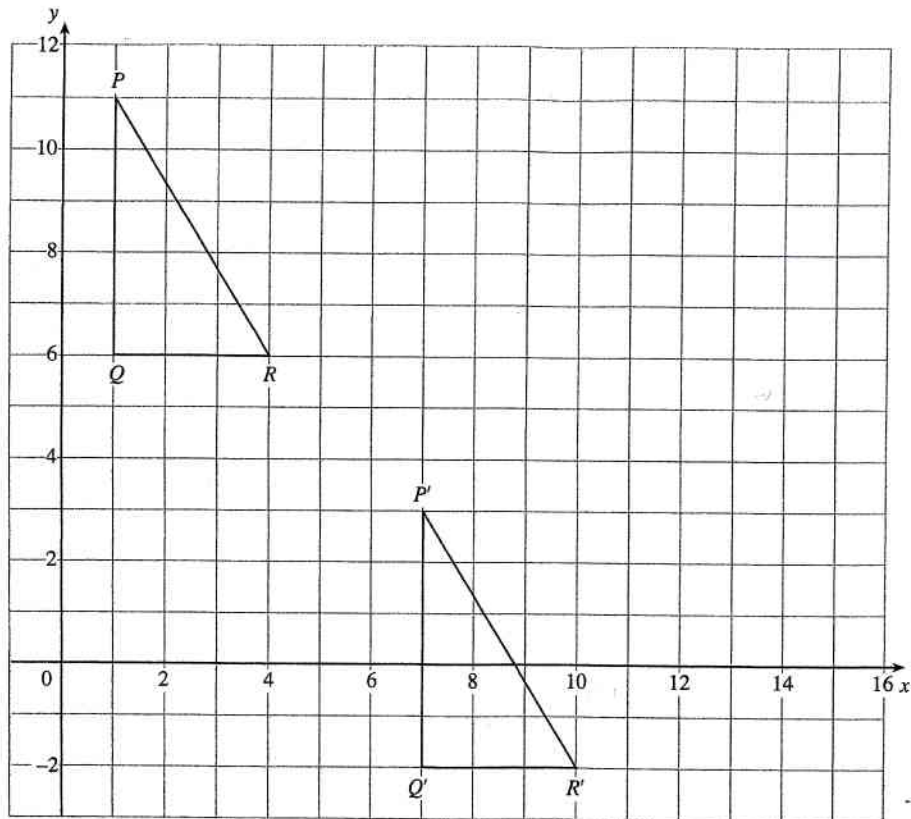


$y=x$

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10

The diagram on the grid below shows the translation of triangle PQR to triangle $P'Q'R'$.



Write down this translation of triangle PQR to triangle $P'Q'R'$ in vector form.

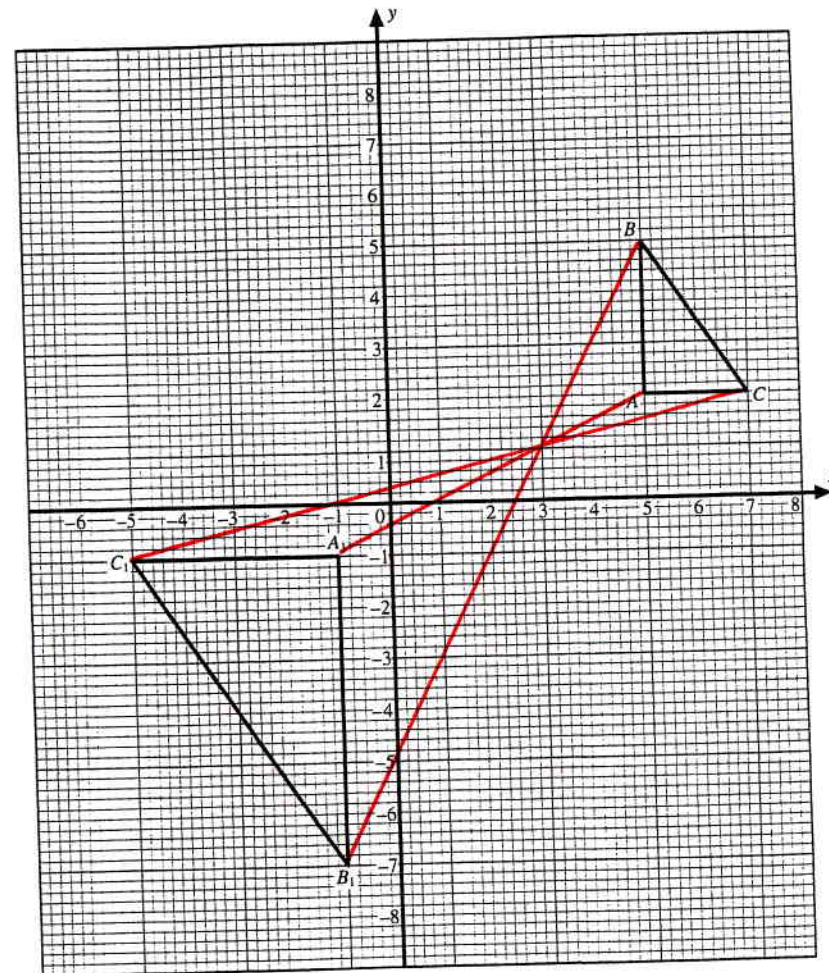
$\begin{pmatrix} 6 \\ -8 \end{pmatrix}$

[2]

Turn over.

11

The diagram shows triangles ABC and $A_1B_1C_1$ drawn to scale.



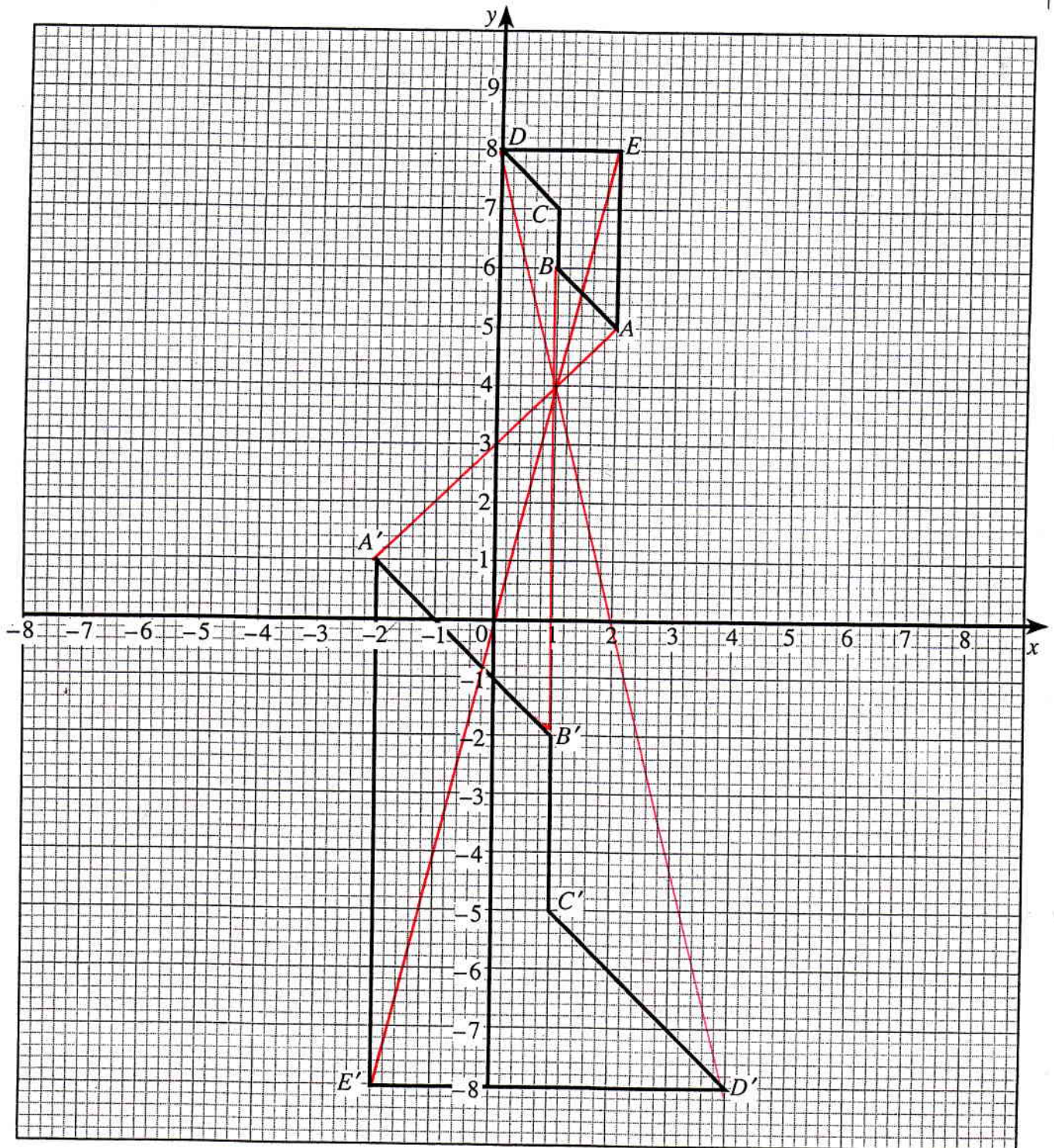
Find the single transformation which takes triangle ABC to triangle $A_1B_1C_1$.

enlargement -2 centre (3, 1)

[3]

Turn over.

12. The diagram shows shapes $ABCDE$ and $A'B'C'D'E'$ drawn to scale.



Find the **single** transformation which takes shape $ABCDE$ to shape $A'B'C'D'E'$.

ENLARGEMENT SCALE FACTOR -3, centre of enlargement (1,4)