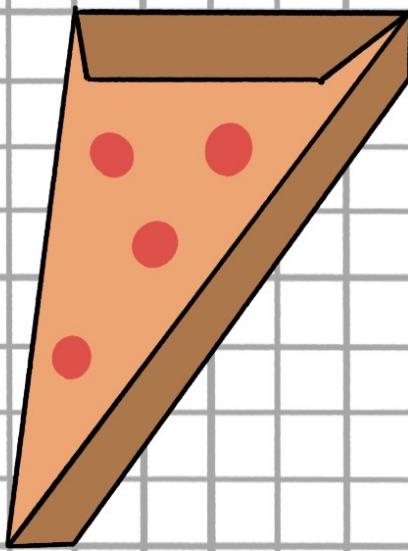
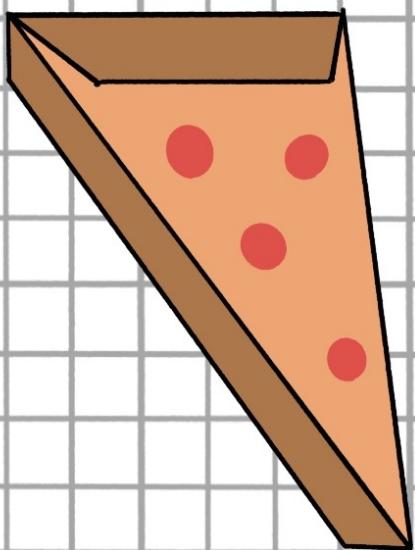


# Transformation

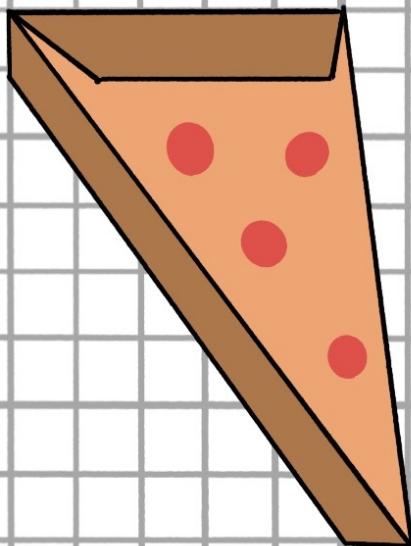
Pre image



Reflection

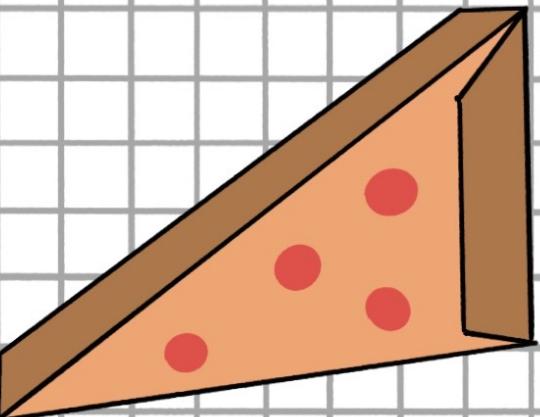


-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9



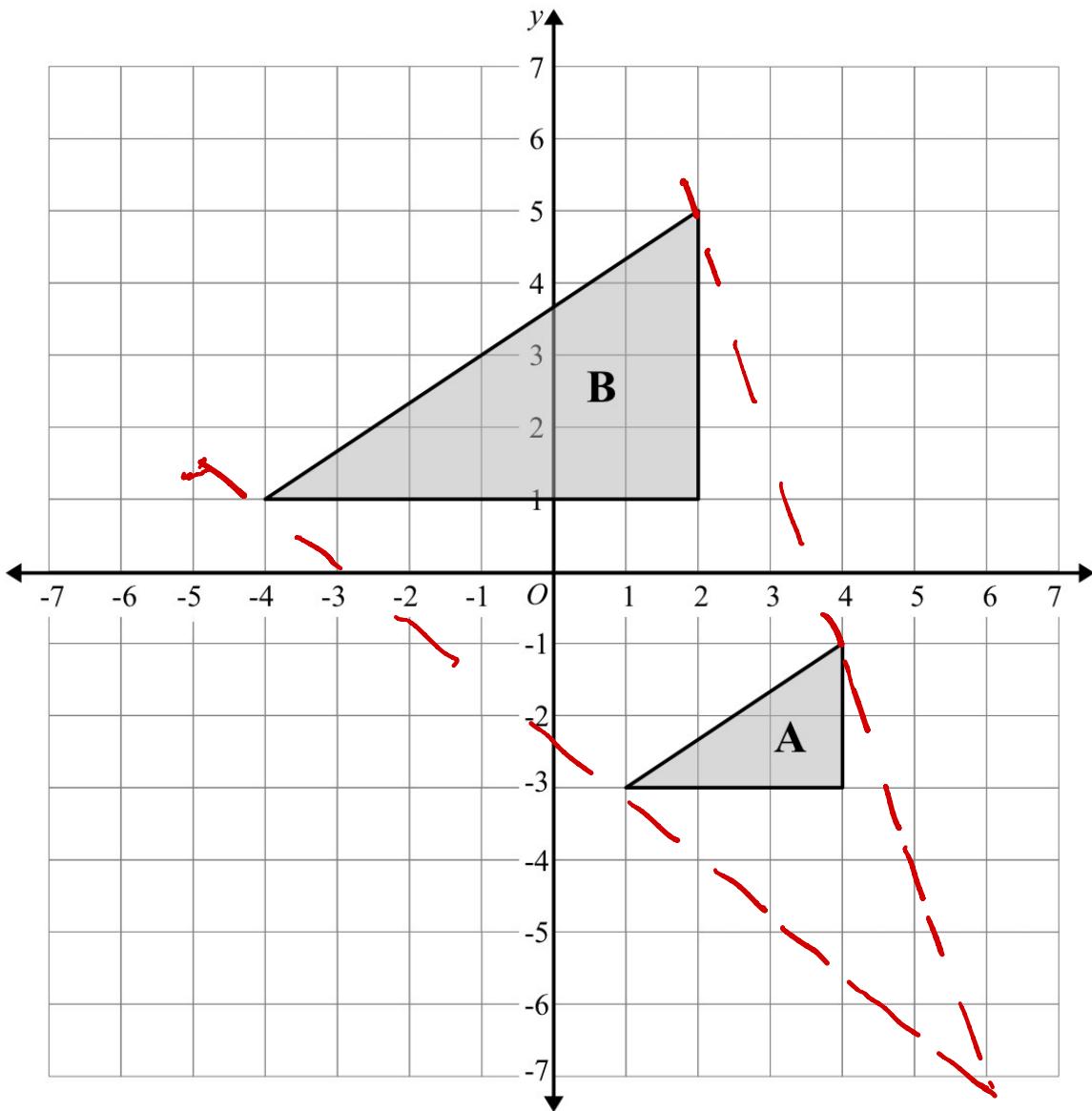
Translation

10  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0  
-1  
-2  
-3  
-4  
-5  
-6  
-7  
-8  
-9  
-10



Rotation

1

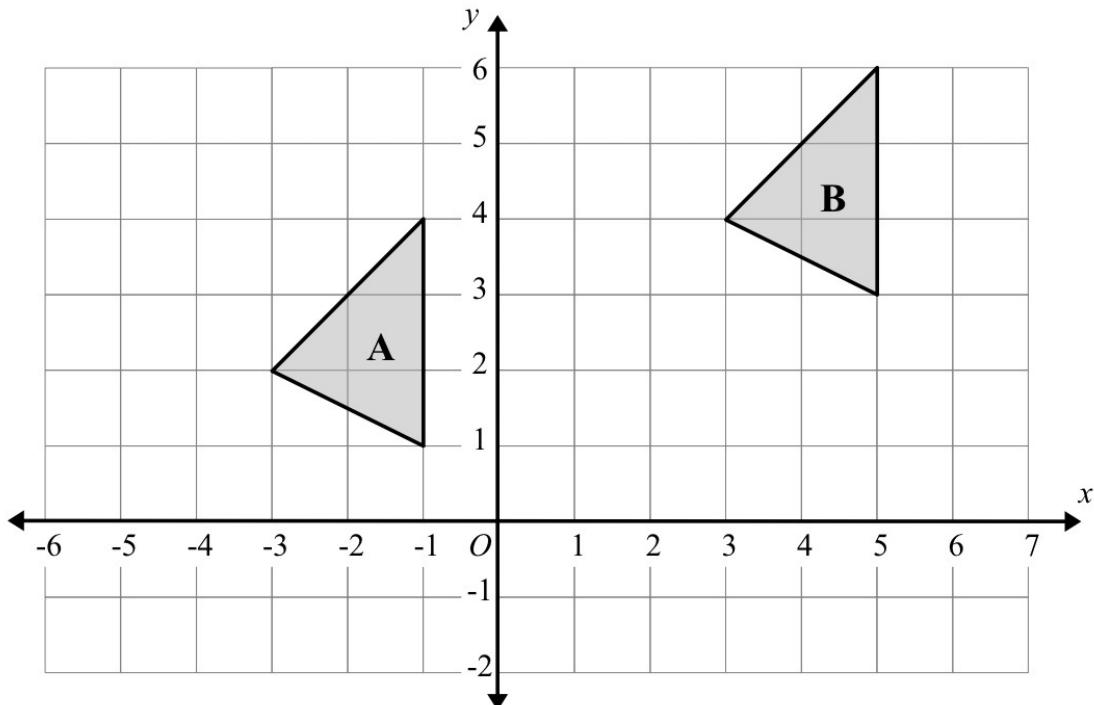


Describe fully the single transformation that maps triangle A on triangle B.

enlargement of scale factor 2, centre of  
enlargement  $(6, -7)$

(Total for question 1 is 2 marks)

2

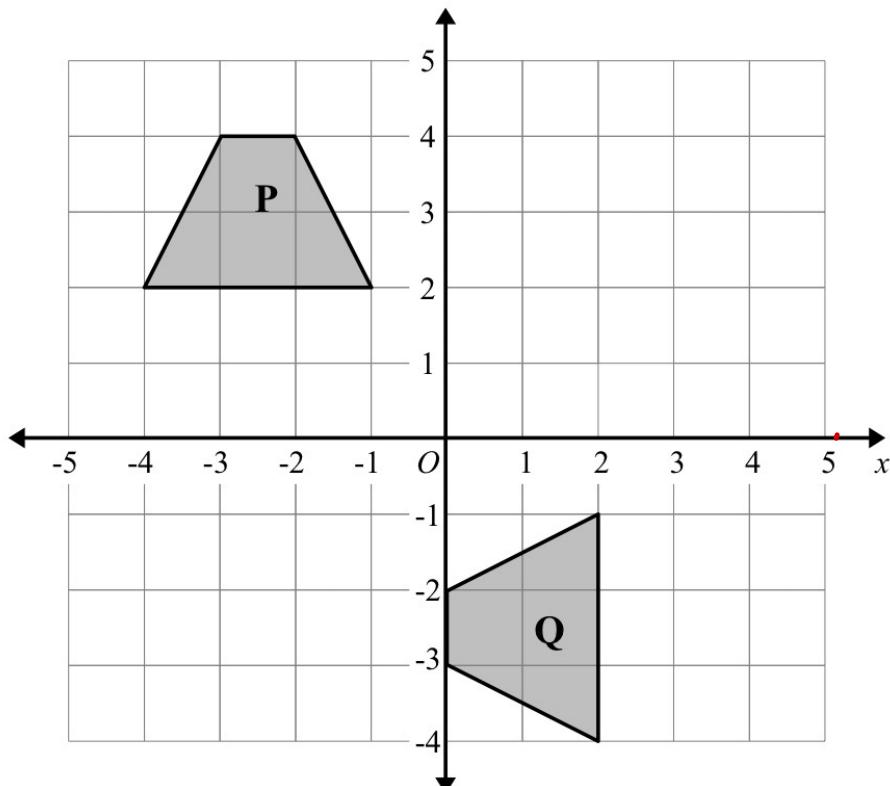


Describe fully the single transformation that maps triangle A on triangle B.

translation by vector  $(\begin{smallmatrix} 6 \\ 2 \end{smallmatrix})$

(Total for question 2 is 2 marks)

3

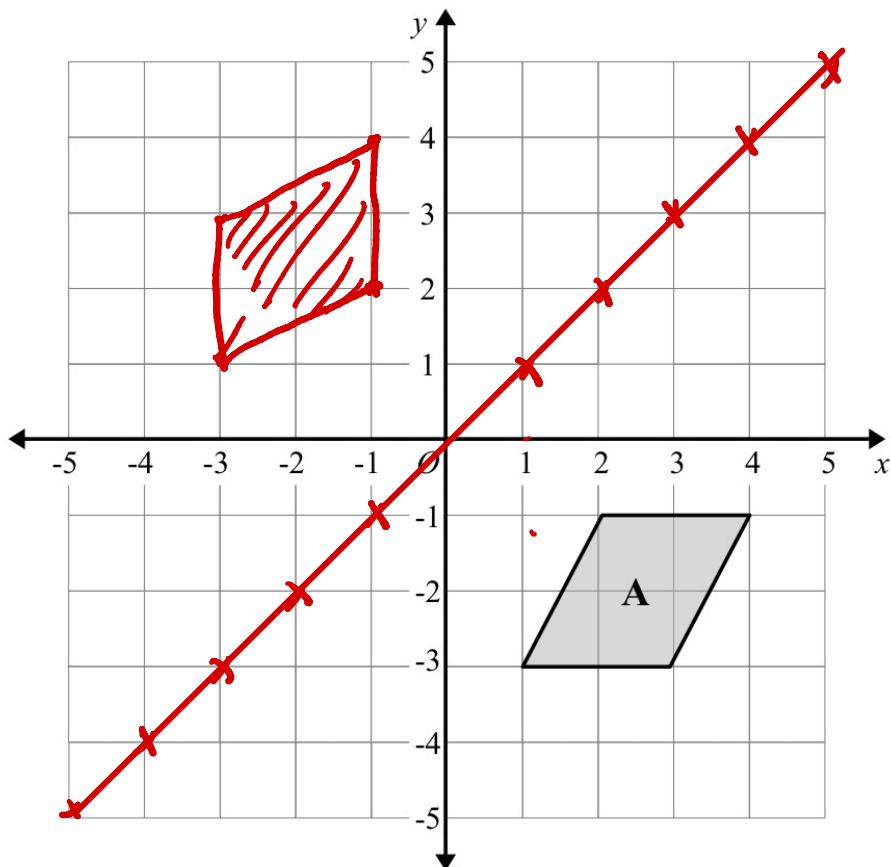


Describe fully the single transformation that maps trapezium P on trapezium Q.

rotation 90° anticlockwise at (2, -2)

(Total for question 3 is 2 marks)

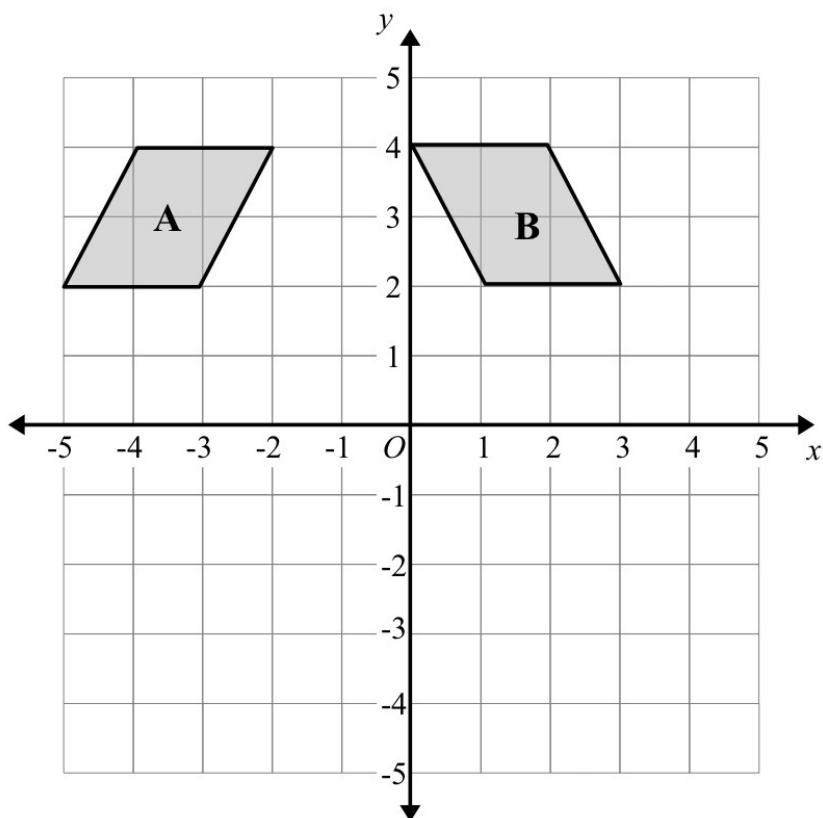
4



Reflect shape A in the line with equation  $y = x$

(Total for question 4 is 2 marks)

5

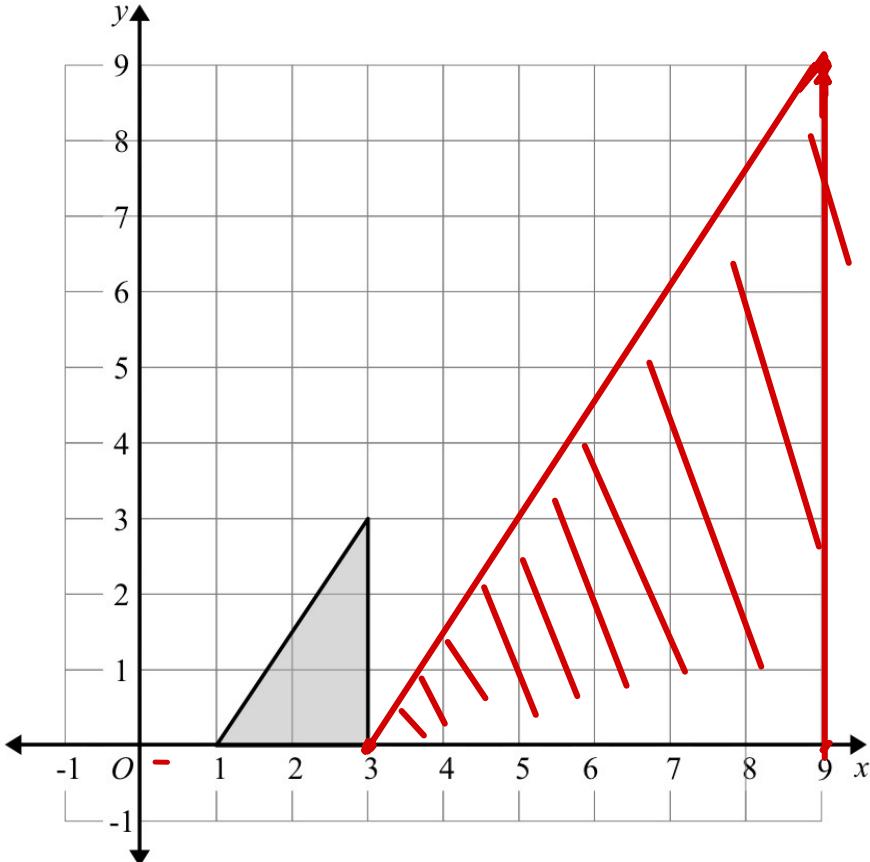


Describe fully the single transformation that maps shape A onto shape B.

*reflection by the line  $x = -1$*

(Total for question 5 is 2 marks)

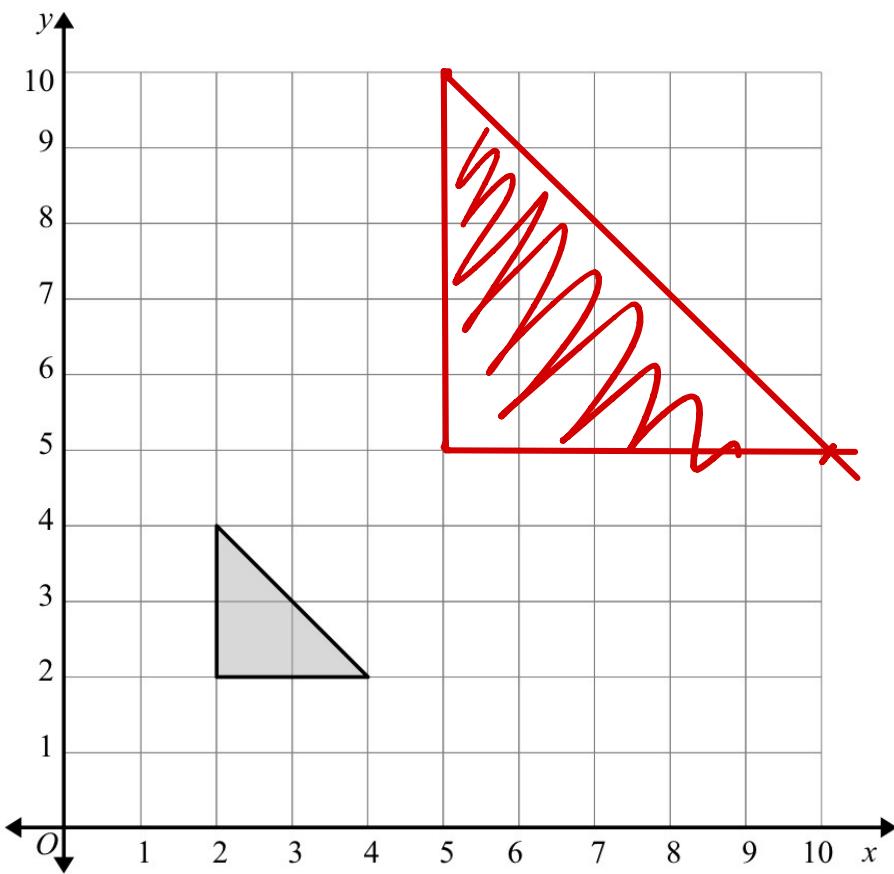
6



Enlarge the shaded triangle by scale factor 3, centre  $O$

(Total for question 6 is 2 marks)

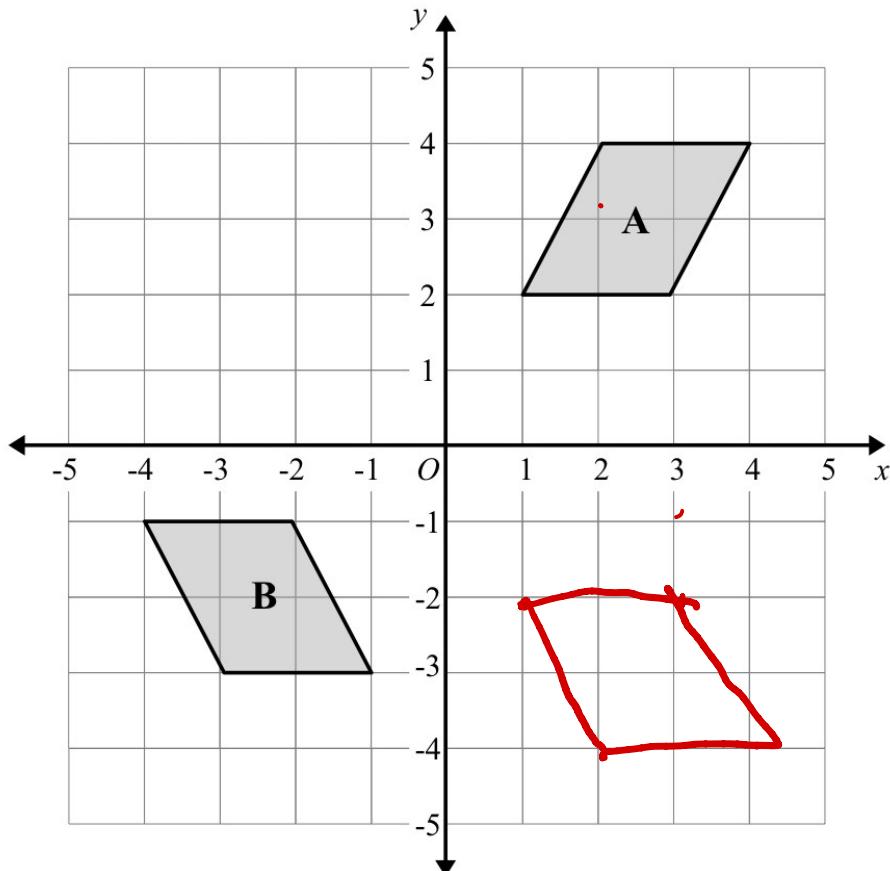
7



Enlarge the shaded triangle by scale factor 2.5, centre  $O$ .

(Total for question 7 is 2 marks)

8



Shape A is transformed to shape B by a reflection in the  $x$  axis followed by a translation  $\begin{pmatrix} p \\ q \end{pmatrix}$

Find the value of  $p$  and the value of  $q$ .

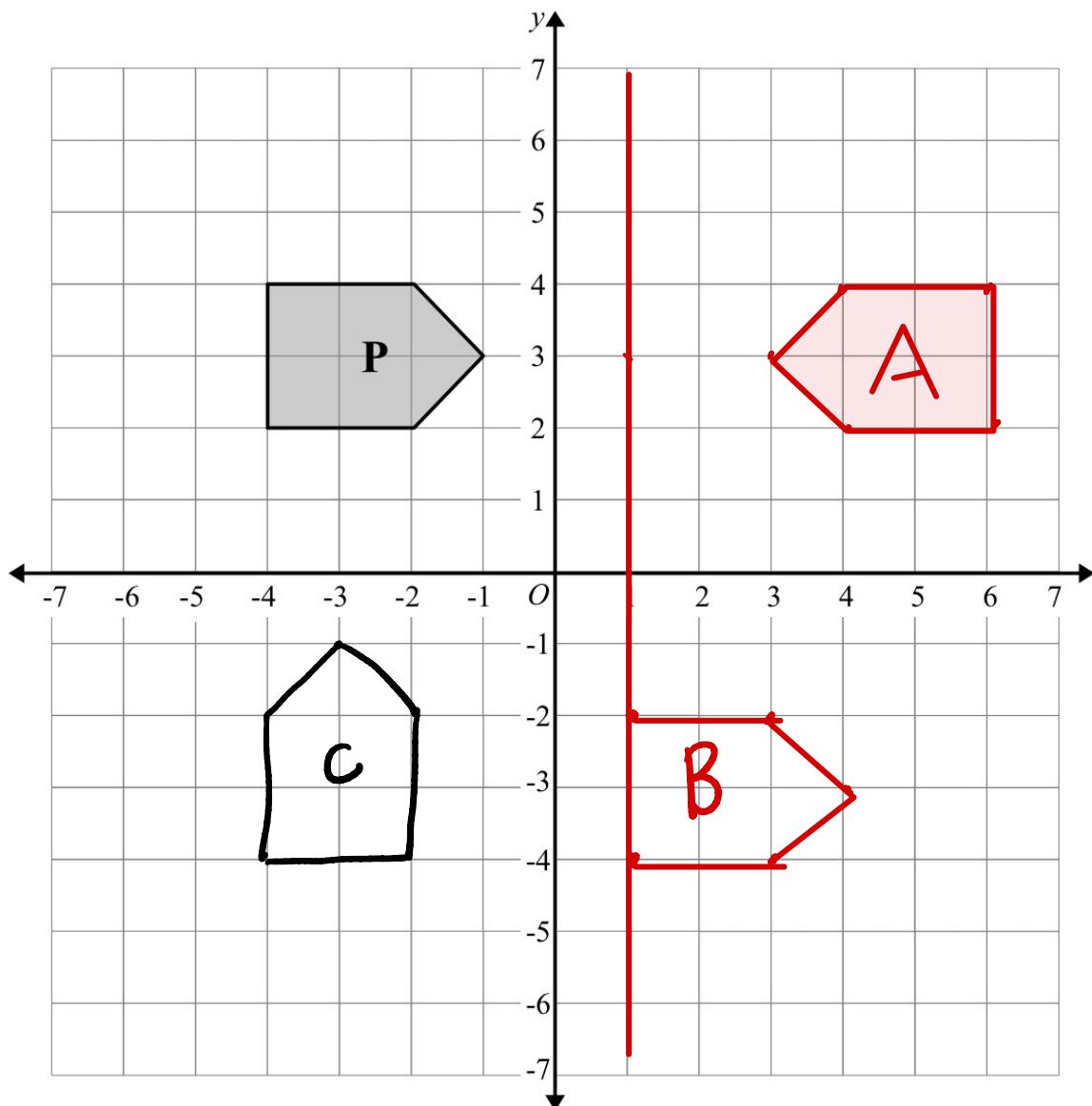
$$p = \dots \textcolor{red}{-5} \dots$$

$|$

$$q = \dots \textcolor{red}{1} \dots$$

(Total for question 8 is 3 marks)

9



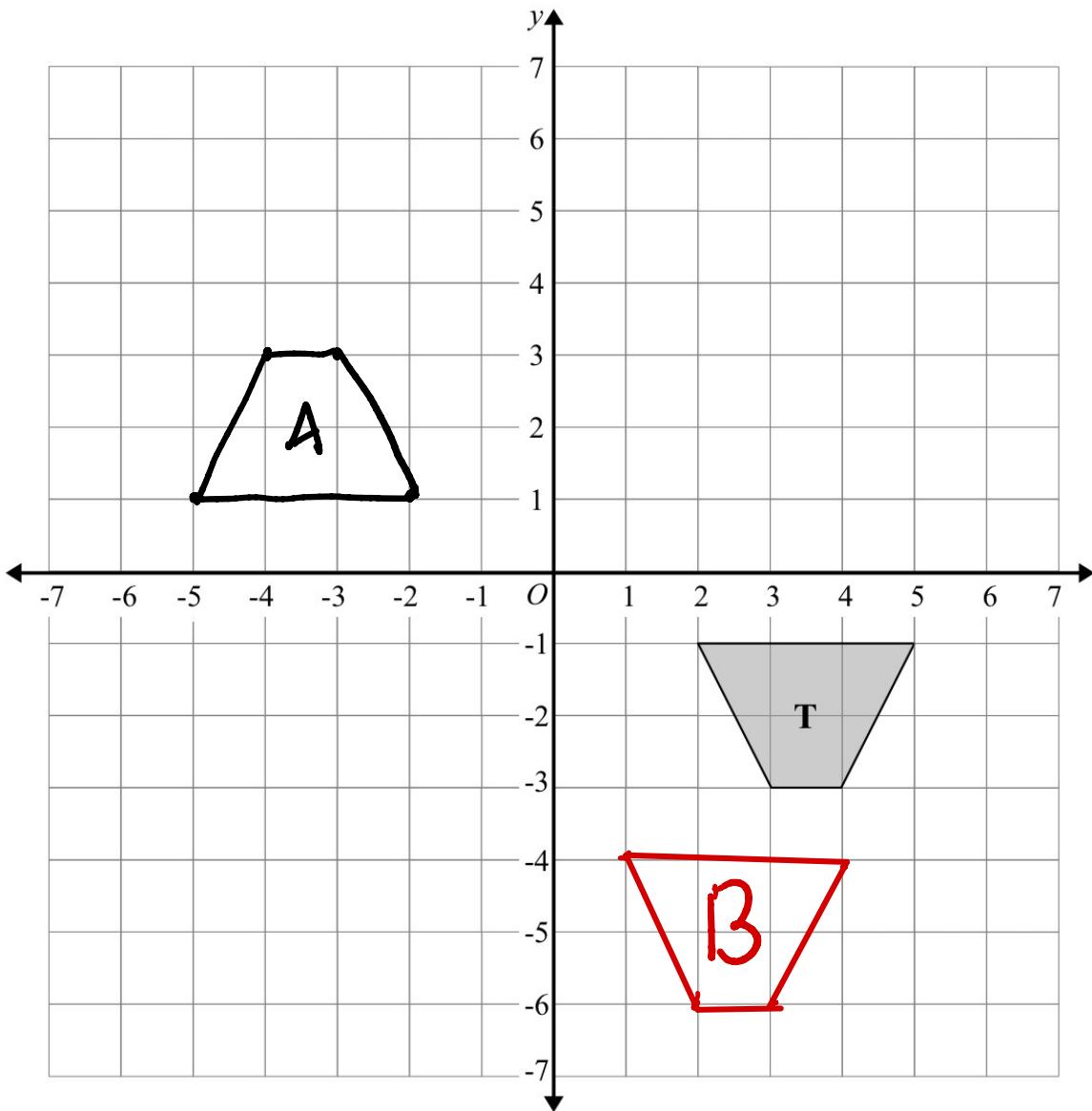
- (a) Reflect shape **P** in the line  $x = 1$ .  
Label the new shape **A**.

- (b) Translate shape **P** by the vector  $\begin{pmatrix} 5 \\ -6 \end{pmatrix}$   
Label the new shape **B**.

- (c) Rotate shape **P** by  $90^\circ$  anticlockwise, centre  $O$   
Label the new shape **C**

(Total for question 9 is 3 marks)

10

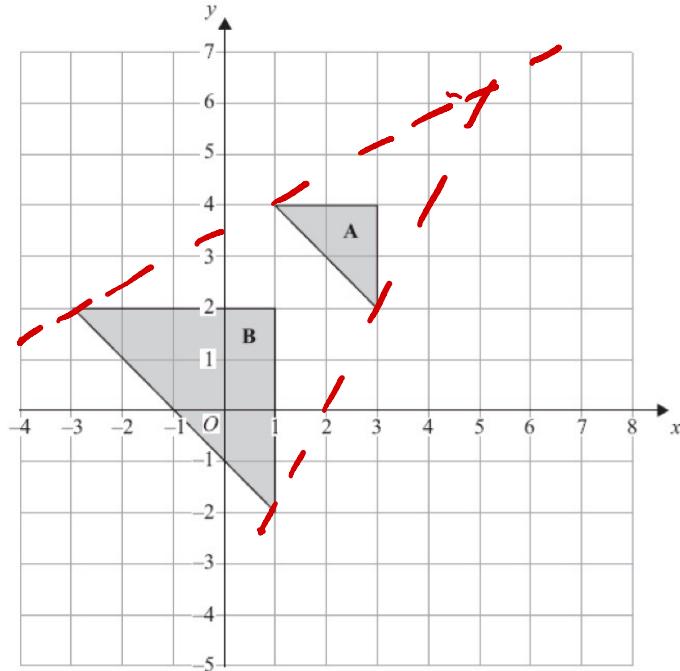


- (a) Rotate trapezium T  $180^\circ$  about the origin.  
Label the new trapezium A.

- (b) Translate trapezium T by the vector  $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$   
Label the new trapezium B.

(Total for question 10 is 2 marks)

1.

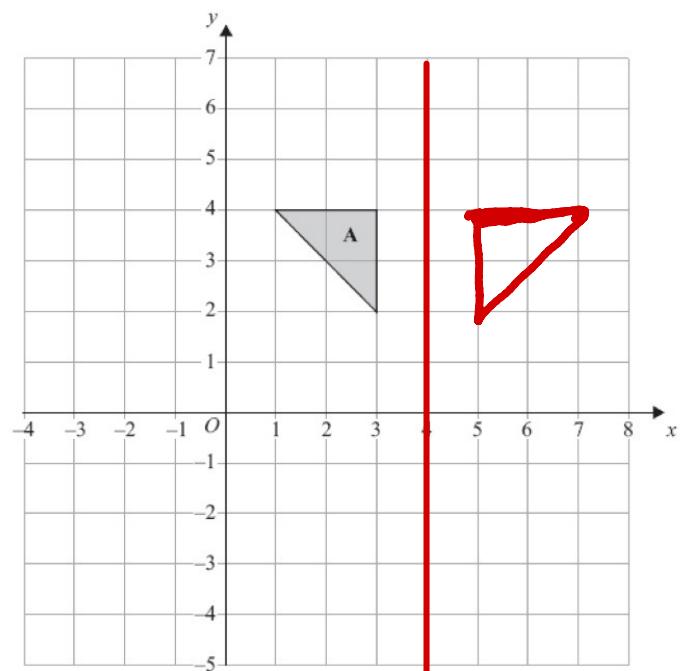


Triangle A and triangle B are drawn on the grid.

- (a) Describe fully the single transformation which maps triangle A onto triangle B.

enlargement by scale factor 2 , centre  
of enlargement (5,6)

(3)

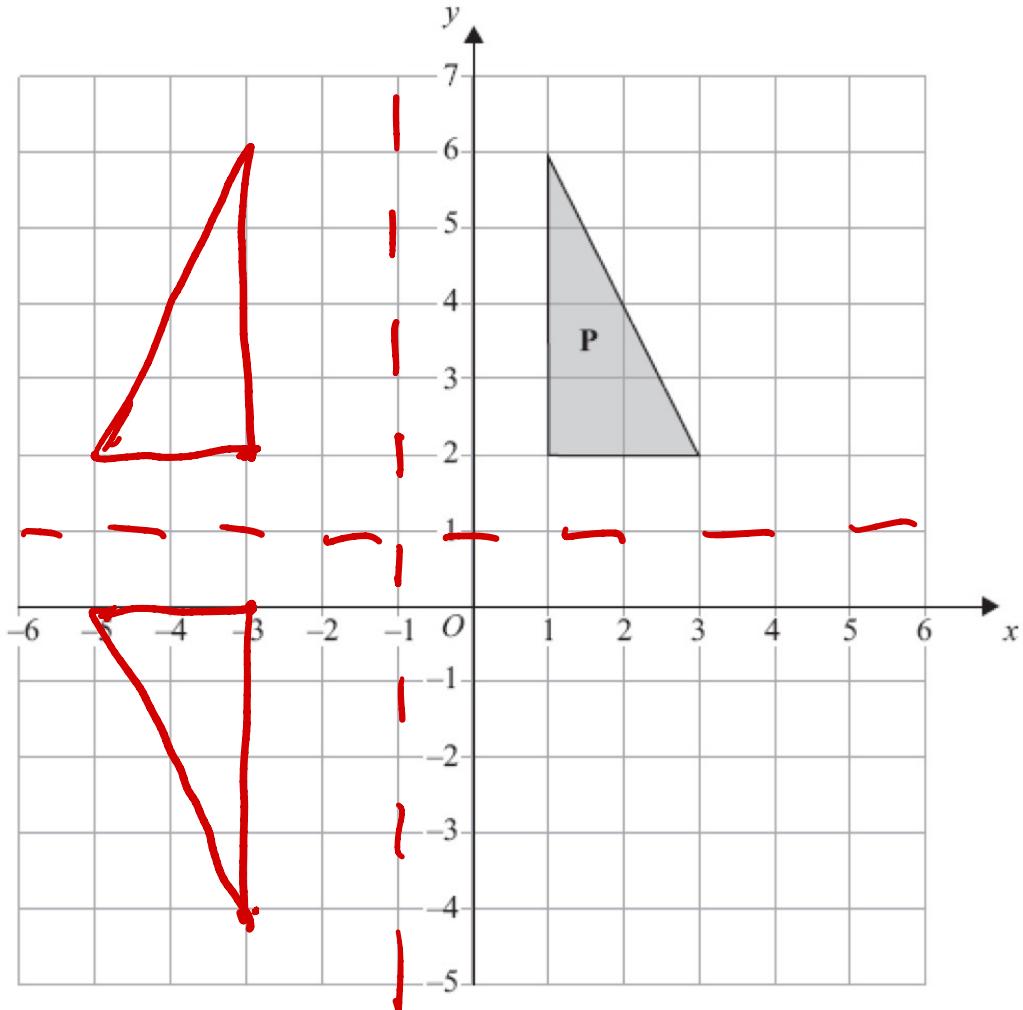


- (b) Reflect triangle A in the line  $x = 4$

(2)

(5 marks)

2.



Triangle **P** is drawn on a coordinate grid.

The triangle **P** is reflected in the line  $x = -1$  and then reflected in the line  $y = 1$  to give triangle **Q**.

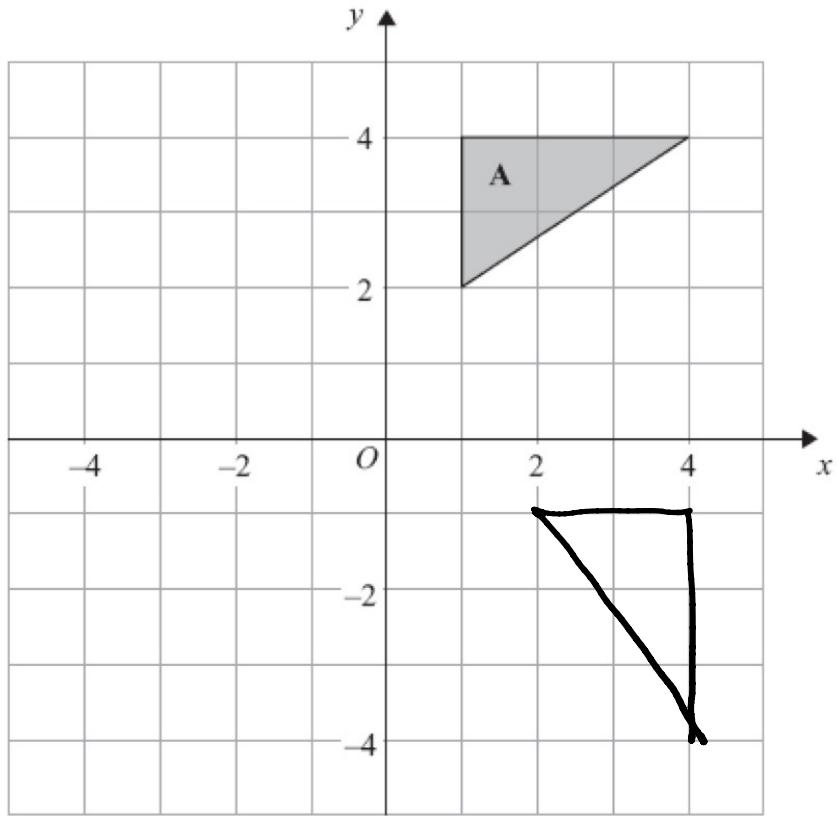
Describe fully the single transformation which maps triangle **P** onto triangle **Q**.

**rotation of  $180^\circ$  at  $(-1, 1)$**

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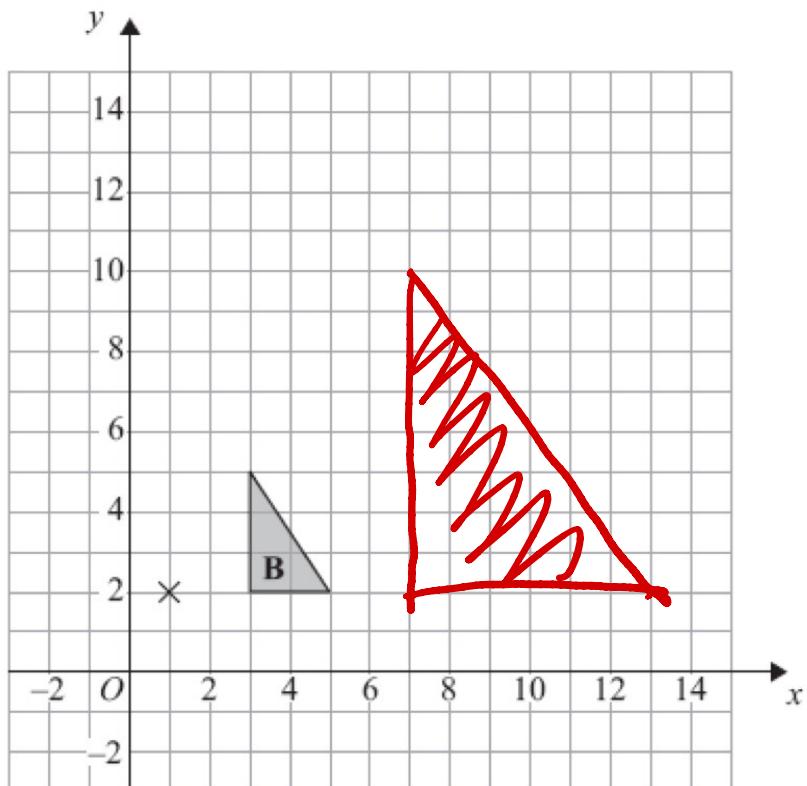
**(3 marks)**

3.



- (a) Rotate triangle A  $90^\circ$  clockwise, centre O.

(2)

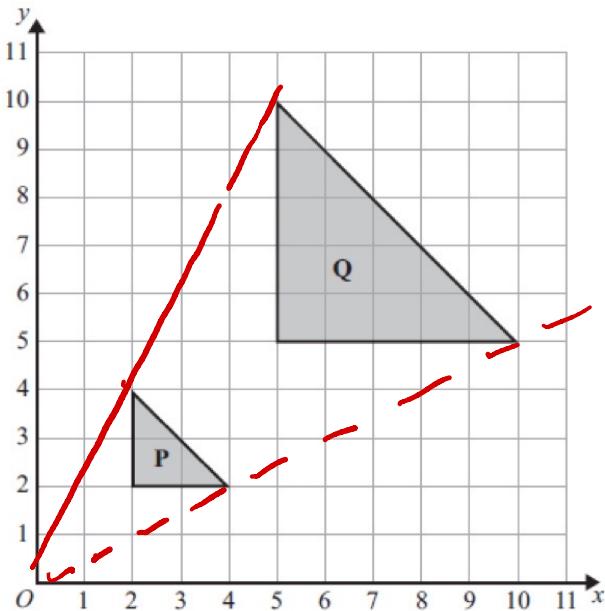


- (b) Enlarge triangle B by scale factor 3, centre (1, 2).

(3)

**(5 marks)**

4.

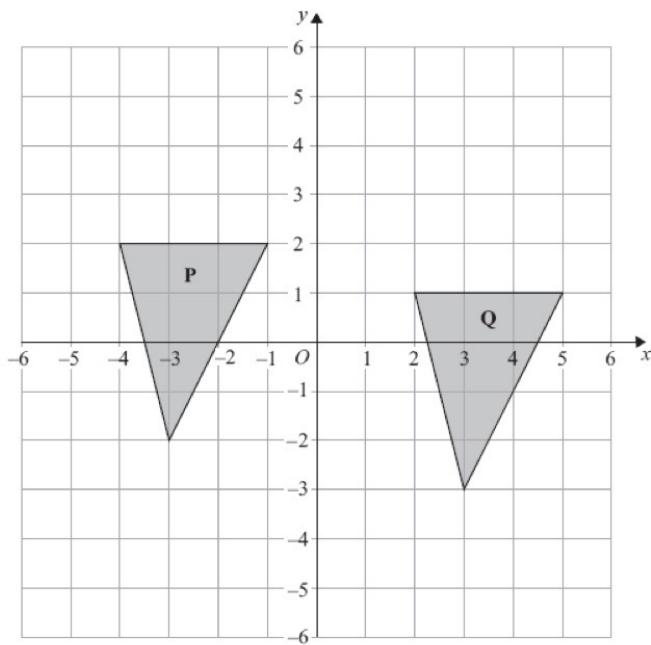


Describe fully the single transformation that maps shape P onto shape Q.

enlargement of scale factor 2.5,  
centre of enlargement (0,0)

(3 marks)

5.

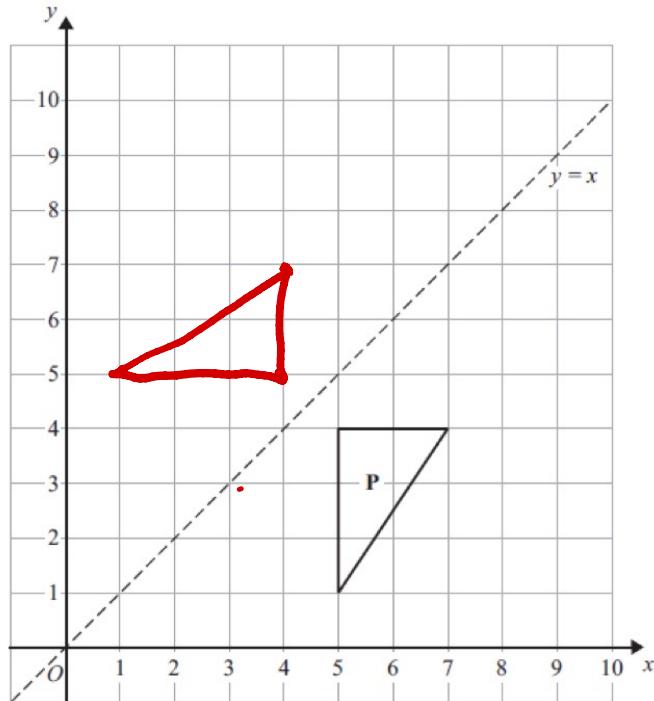


Describe fully the single transformation that maps triangle P onto triangle Q.

reflection by vector  $(\begin{pmatrix} 0 \\ 1 \end{pmatrix})$

(3 marks)

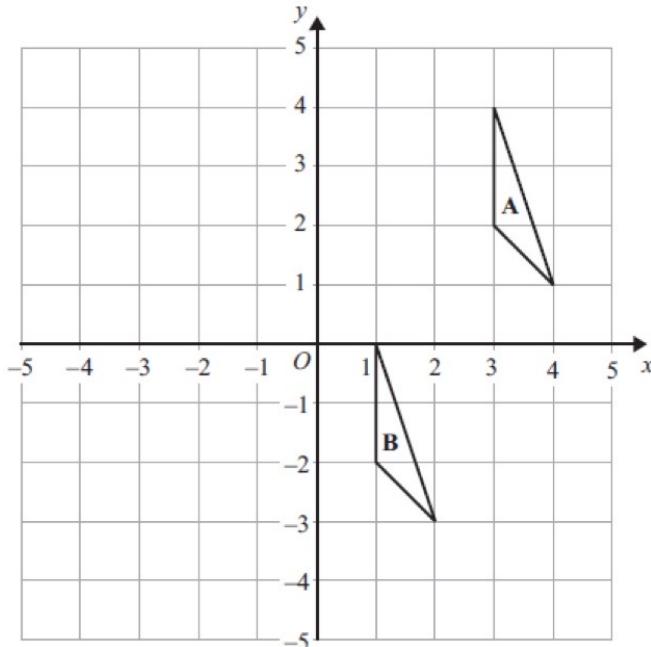
6. (a)



Reflect shape **P** in the line  $y = x$

(2)

(b)



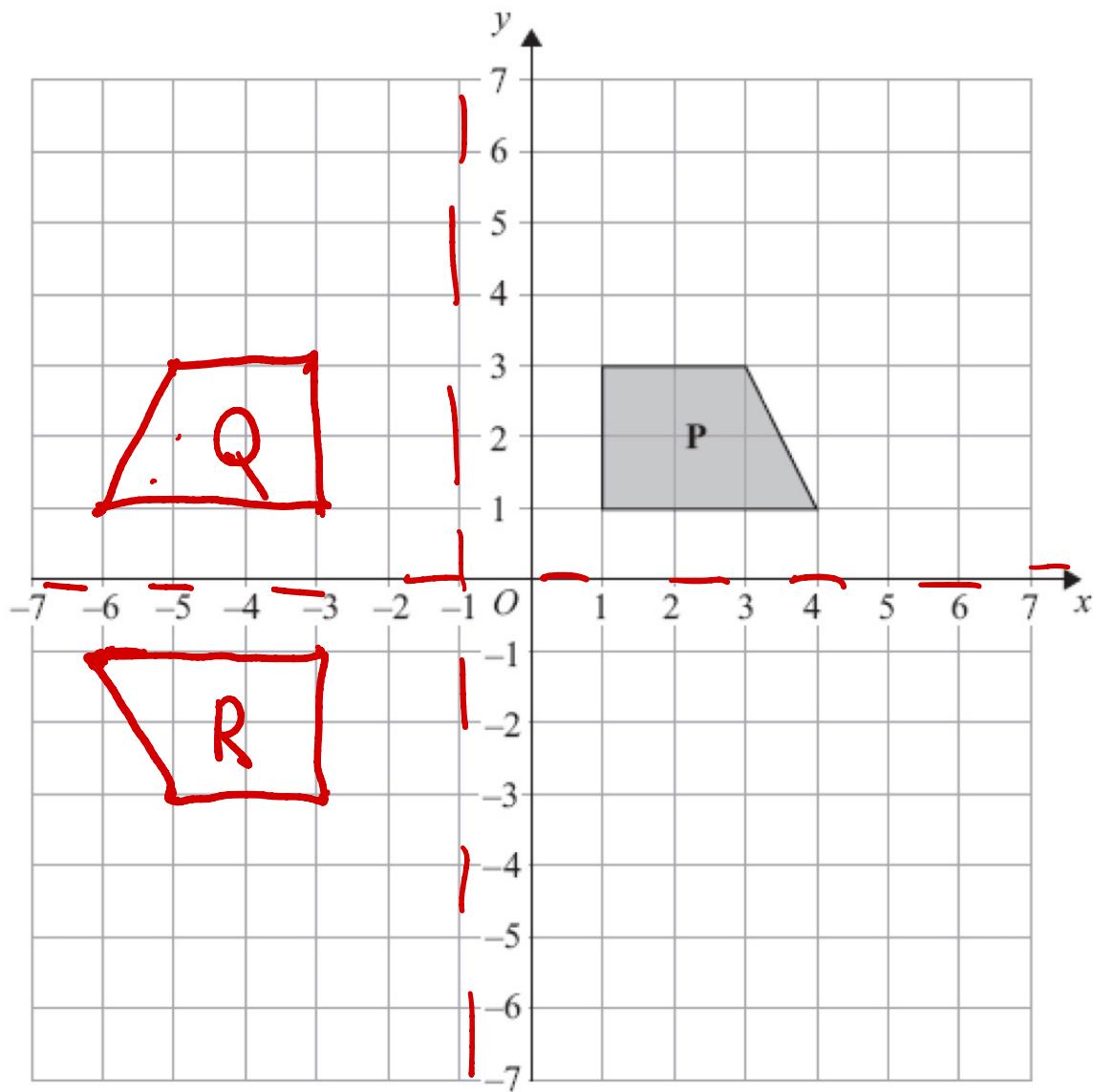
Describe fully the single transformation that maps triangle **A** onto triangle **B**.

.....  
*translation by vector  $\begin{pmatrix} -2 \\ -3 \end{pmatrix}$* .....

(2)

(4 marks)

7.



Shape **P** is reflected in the line  $x = -1$  to give shape **Q**.

Shape **Q** is reflected in the line  $y = 0$  to give shape **R**.

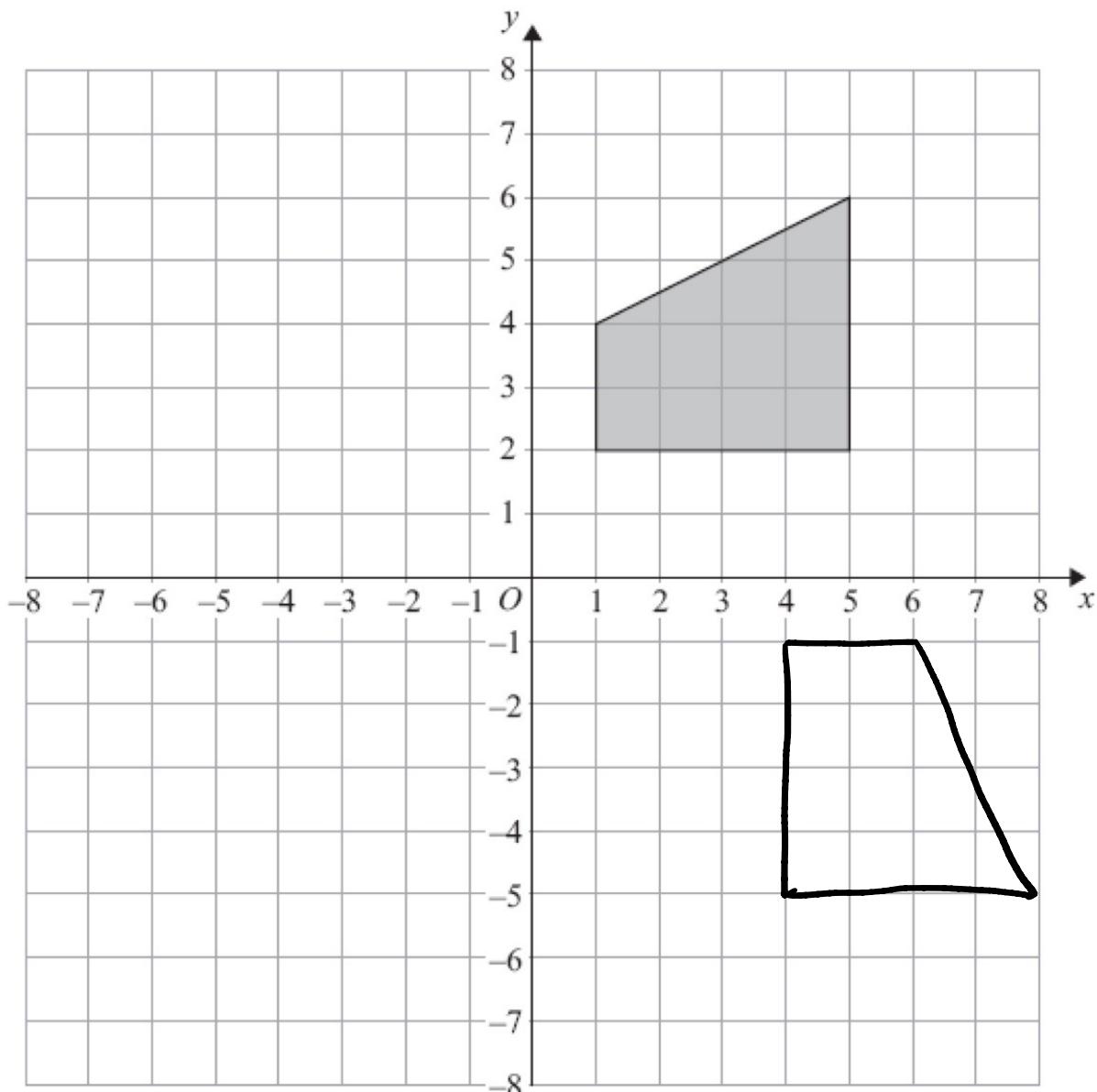
Describe fully the **single** transformation that maps shape **P** onto shape **R**.

.....  
**rotation 180° at (-1, 0)**

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**(3 marks)**

8.



Rotate the shaded shape  $90^0$  clockwise about the point  $(1, -1)$ .

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**(3 marks)**