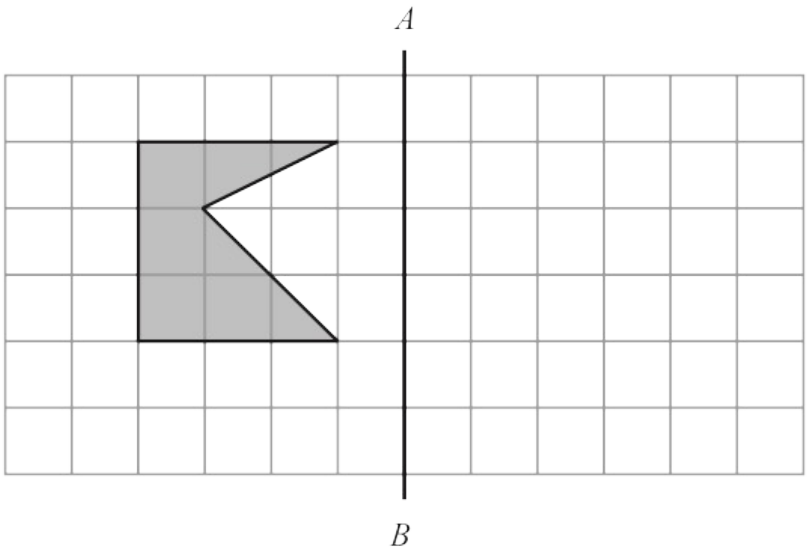
3.6 Transformation

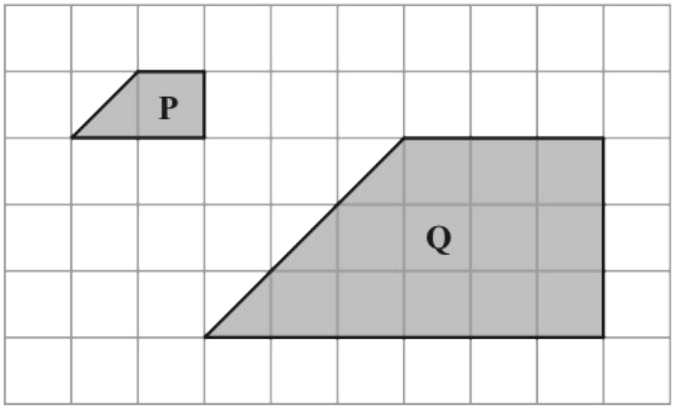
Mr Farouk
Teacher of Mathematics
BSc/MSc/PGCE Mathematics
cieigcsesolutions@gmail.com

10 (a) On the grid, reflect the shaded shape in the line AB.



(1)

Shape **Q** is an enlargement of shape **P**.



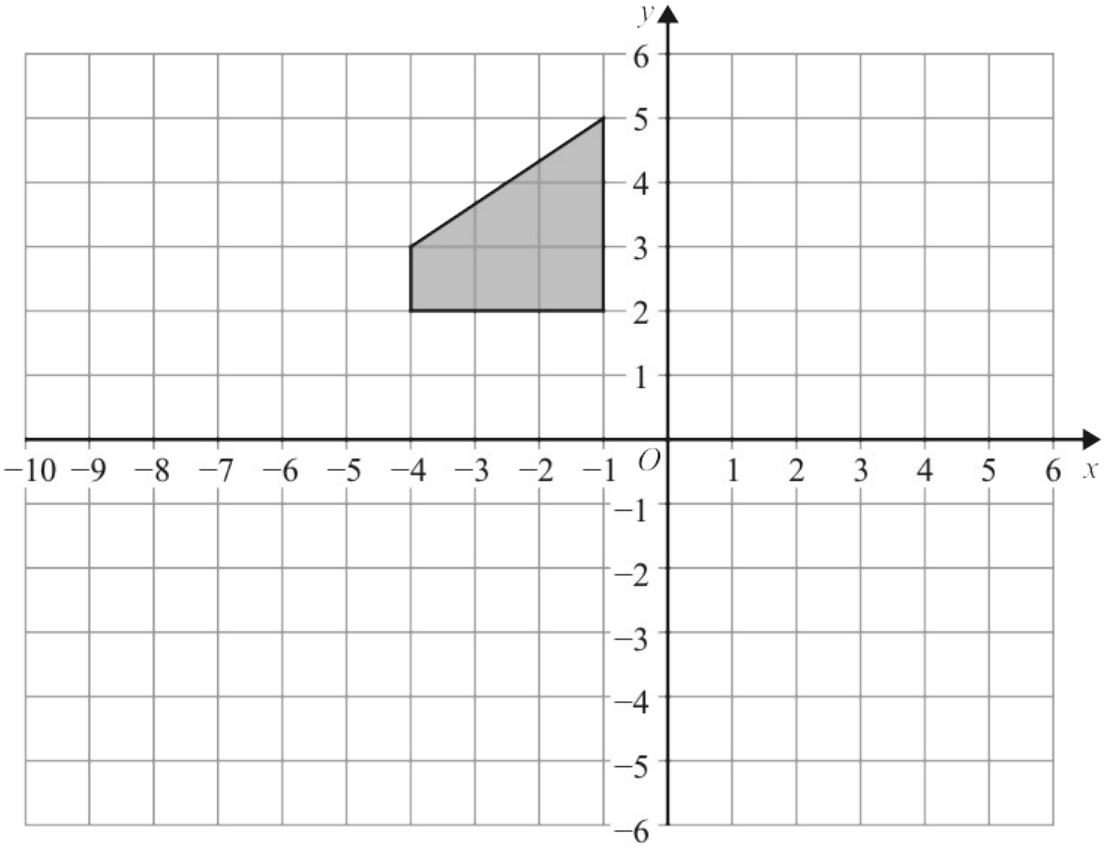
(b) Write down the scale factor of the enlargement.

.....

(1)

(Total for Question 10 is 2 marks)

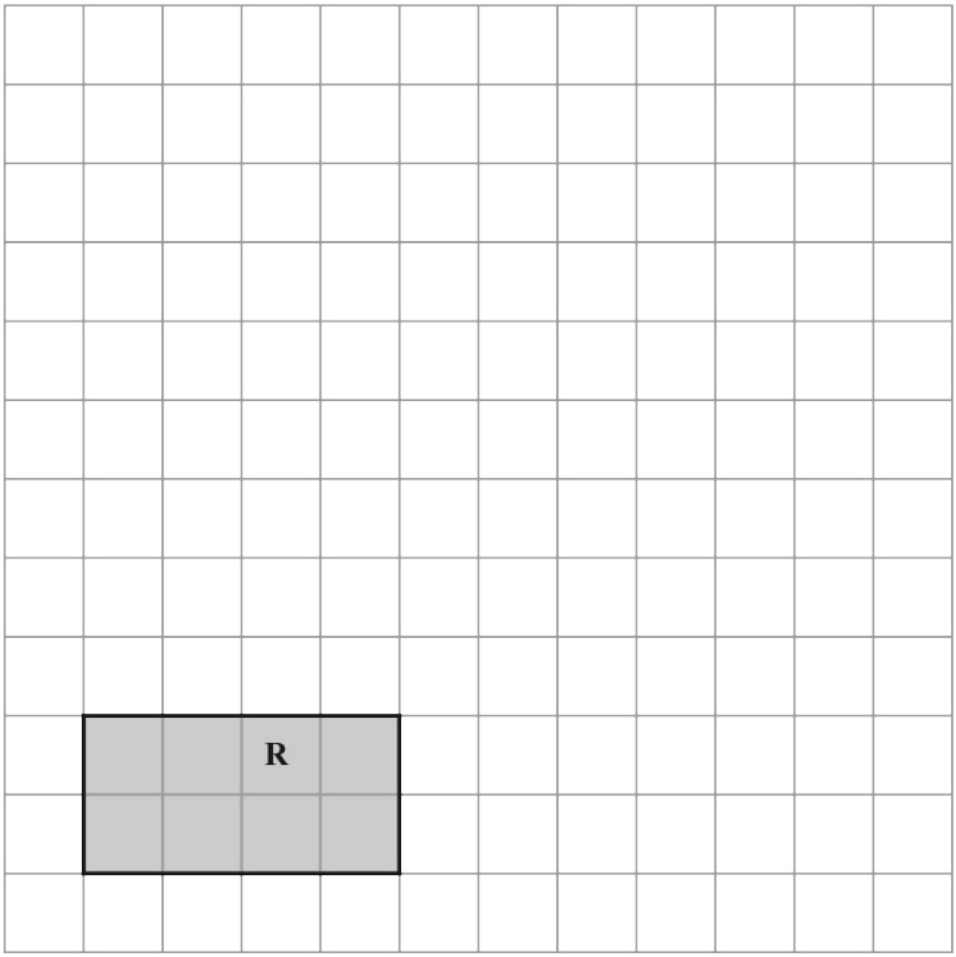
19



Rotate the shaded shape 90° clockwise about the point (−2, −1)

(Total for Question 19 is 2 marks)

5 Rectangle **R** is drawn on a centimetre grid.



(a) Find the perimeter of rectangle **R**.

.....cm

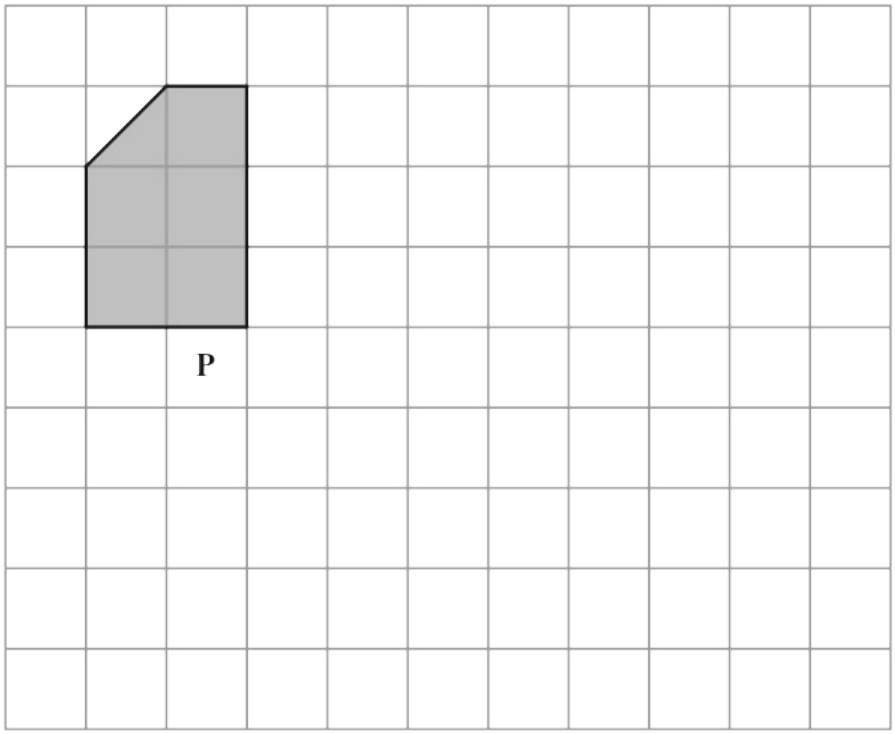
(1)

A square **S** has an area twice the area of rectangle **R**.

(b) On the grid, draw square **S**.

(2)

12 The diagram shows shape **P** on a centimetre grid.



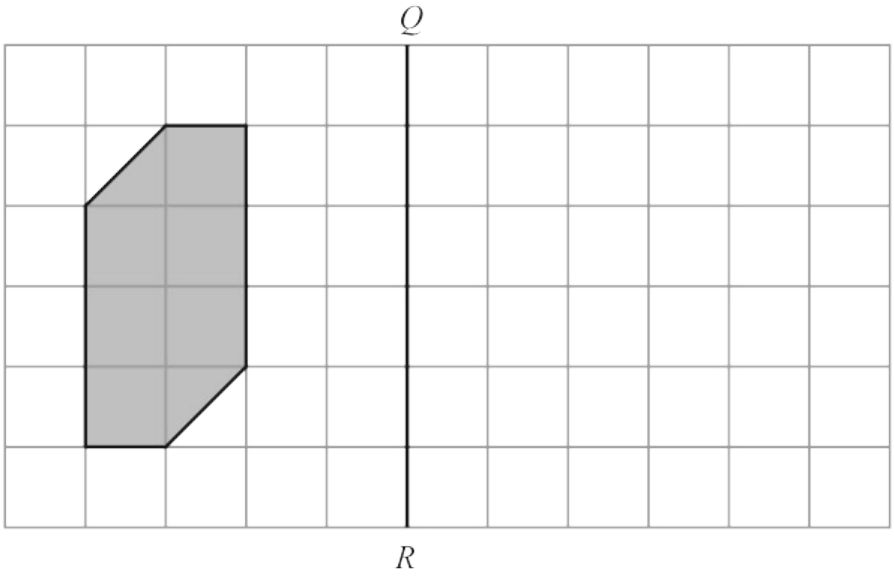
(a) (i) Find the area of shape **P**.

.....cm^2

(ii) On the grid above, draw a shape that is similar but not congruent to shape **P**.

(2)

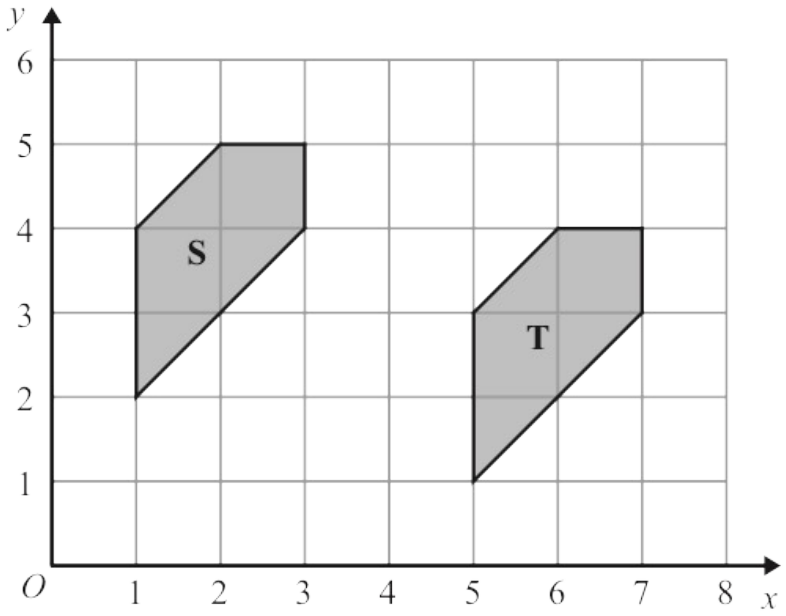
The diagram shows a shape on a centimetre grid and a line QR.



(b) On the grid, reflect the shape in the line QR.

(2)

The diagram shows shape **S** and shape **T** on a centimetre grid.



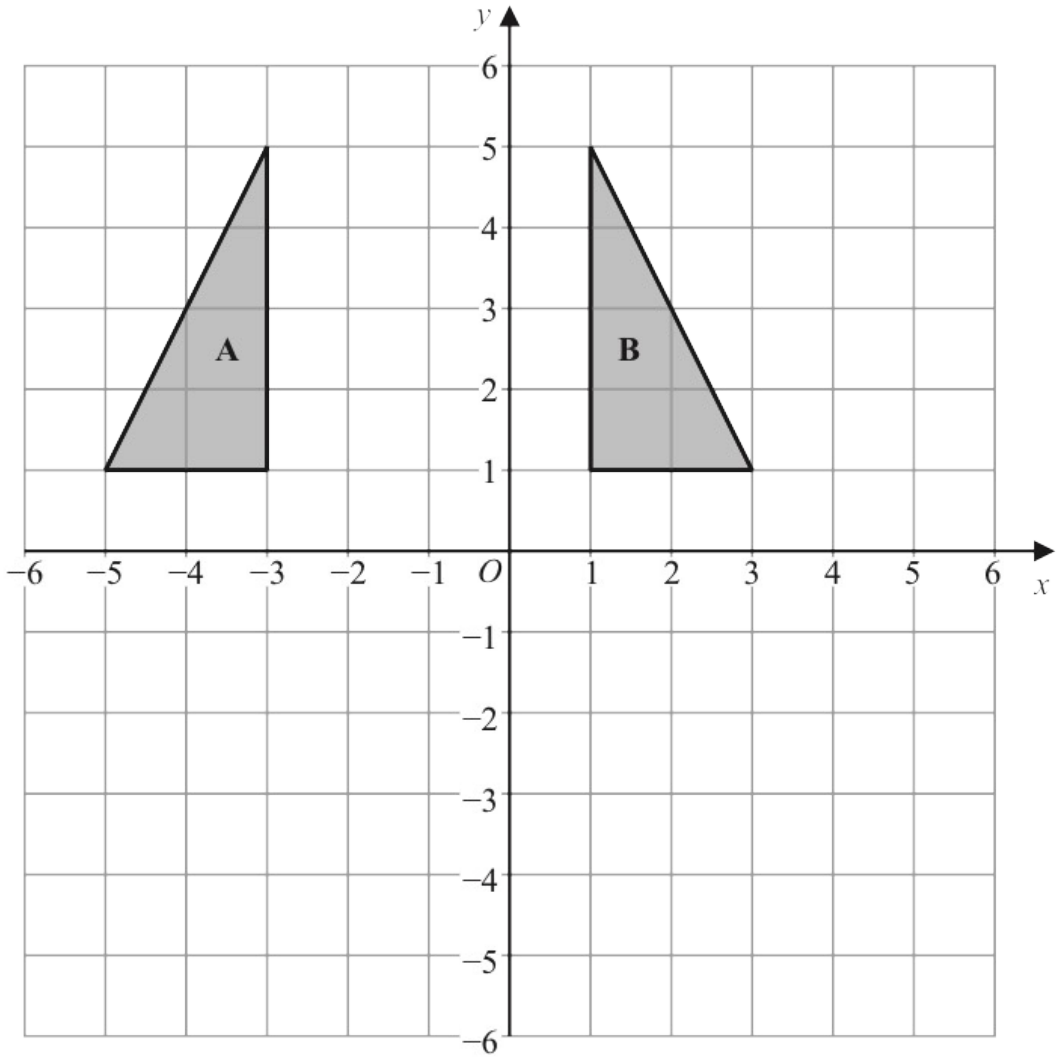
(c) Describe fully the single transformation that maps shape **S** onto shape **T**.

.....

.....

(2)

12



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

.....

.....

(2)

(b) On the grid, translate triangle **B** by the vector $\begin{pmatrix} 2 \\ -6 \end{pmatrix}$

Label your triangle **C**.

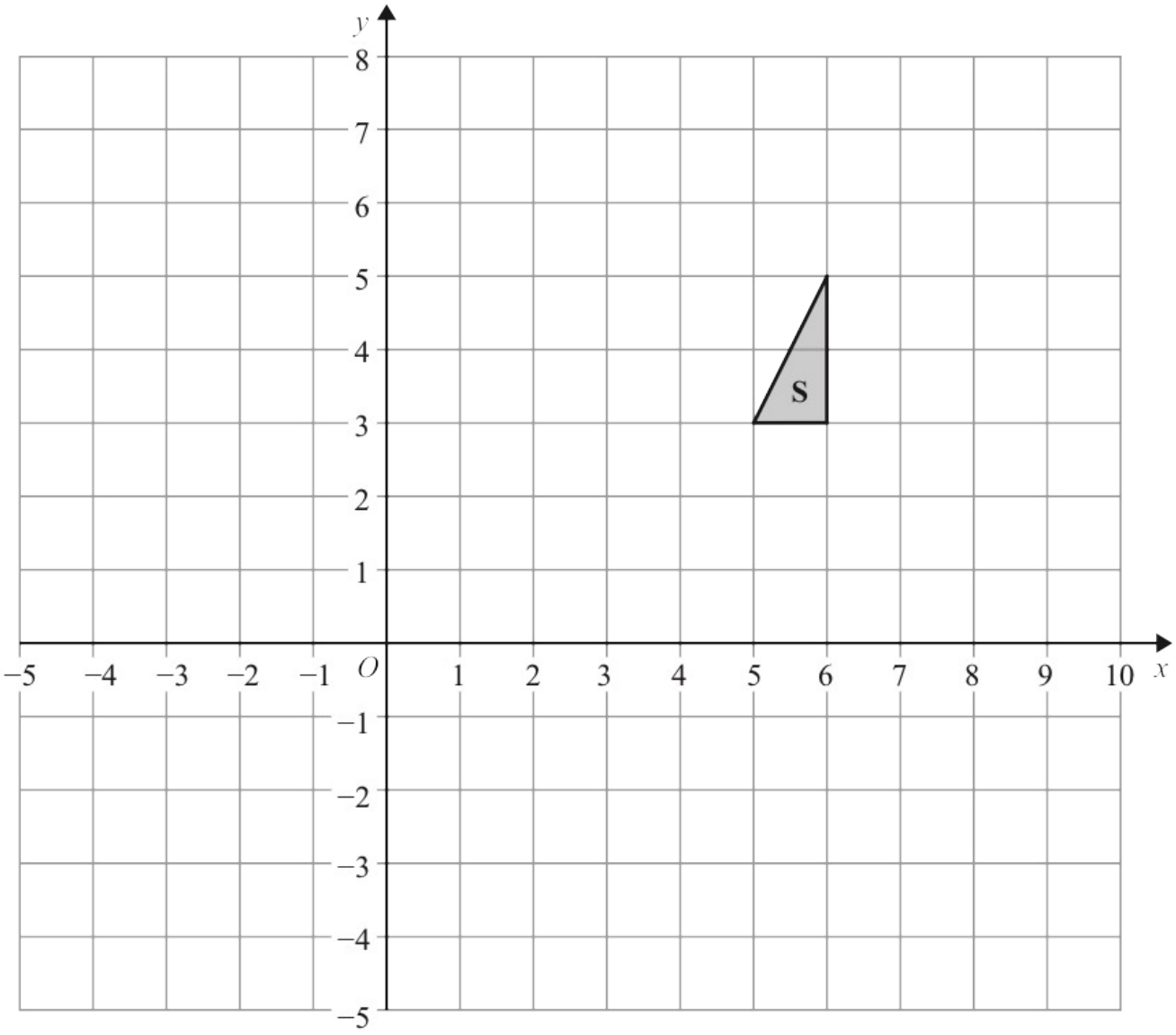
(1)

(c) Describe fully the single transformation that maps triangle **C** onto triangle **B**.

.....

(1)

17



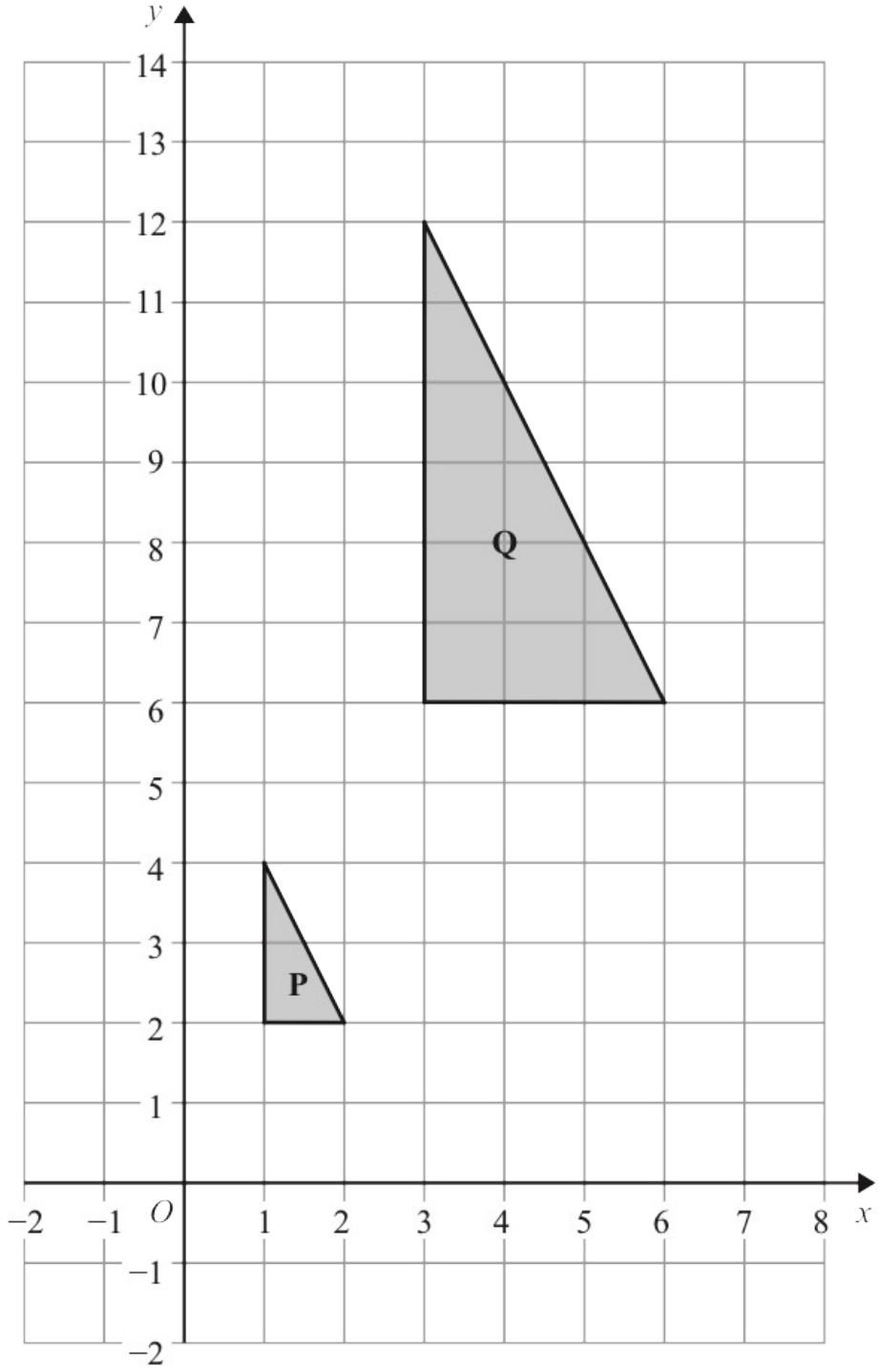
(a) Reflect triangle **S** in the line $y = x$
Label the new triangle **R**.

(2)

(b) Translate triangle **S** by the vector $\begin{pmatrix} -4 \\ -6 \end{pmatrix}$

Label the new triangle **T**.

(1)



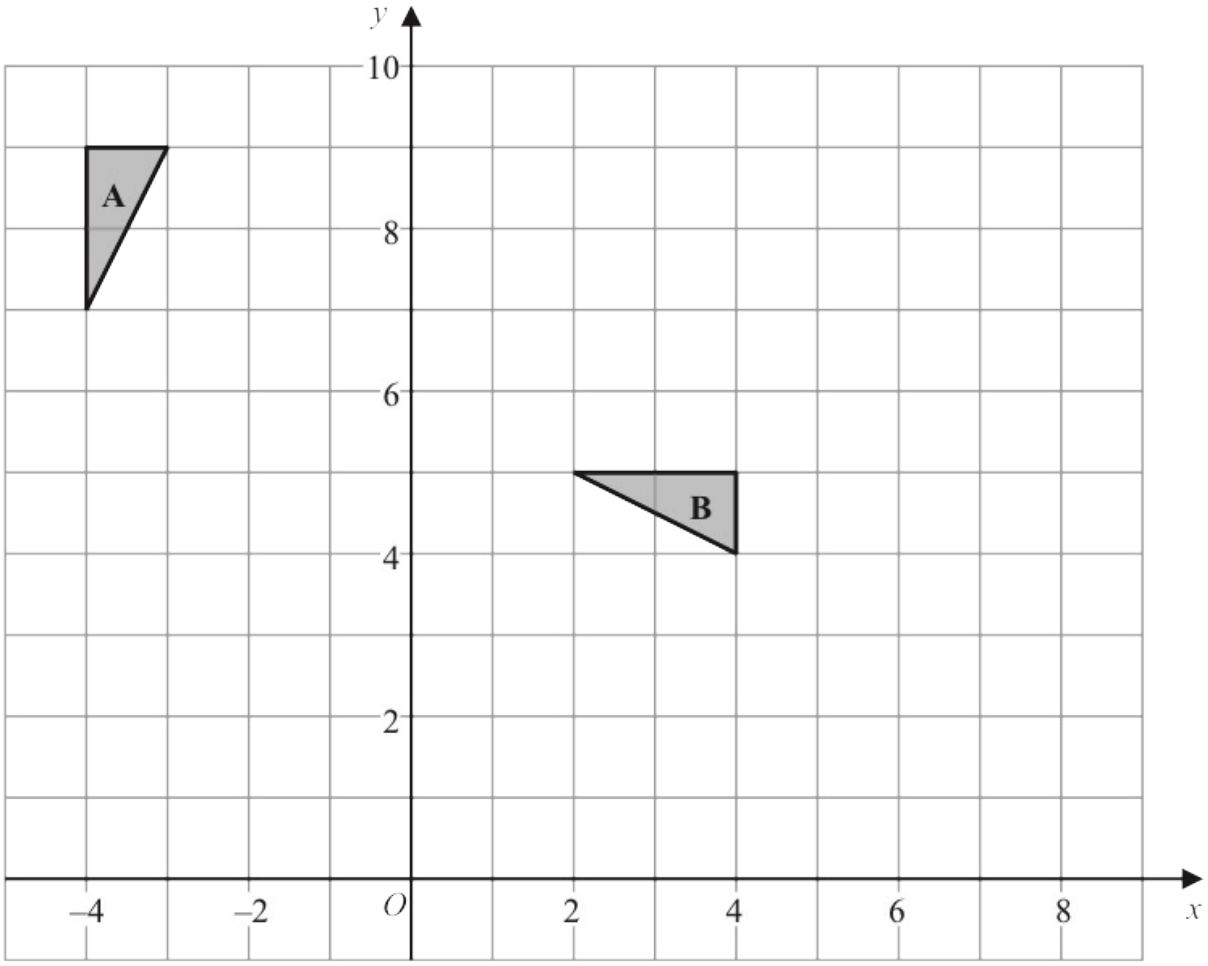
(c) Describe fully the single transformation that maps triangle **P** onto triangle **Q**.

.....

.....

(2)

16



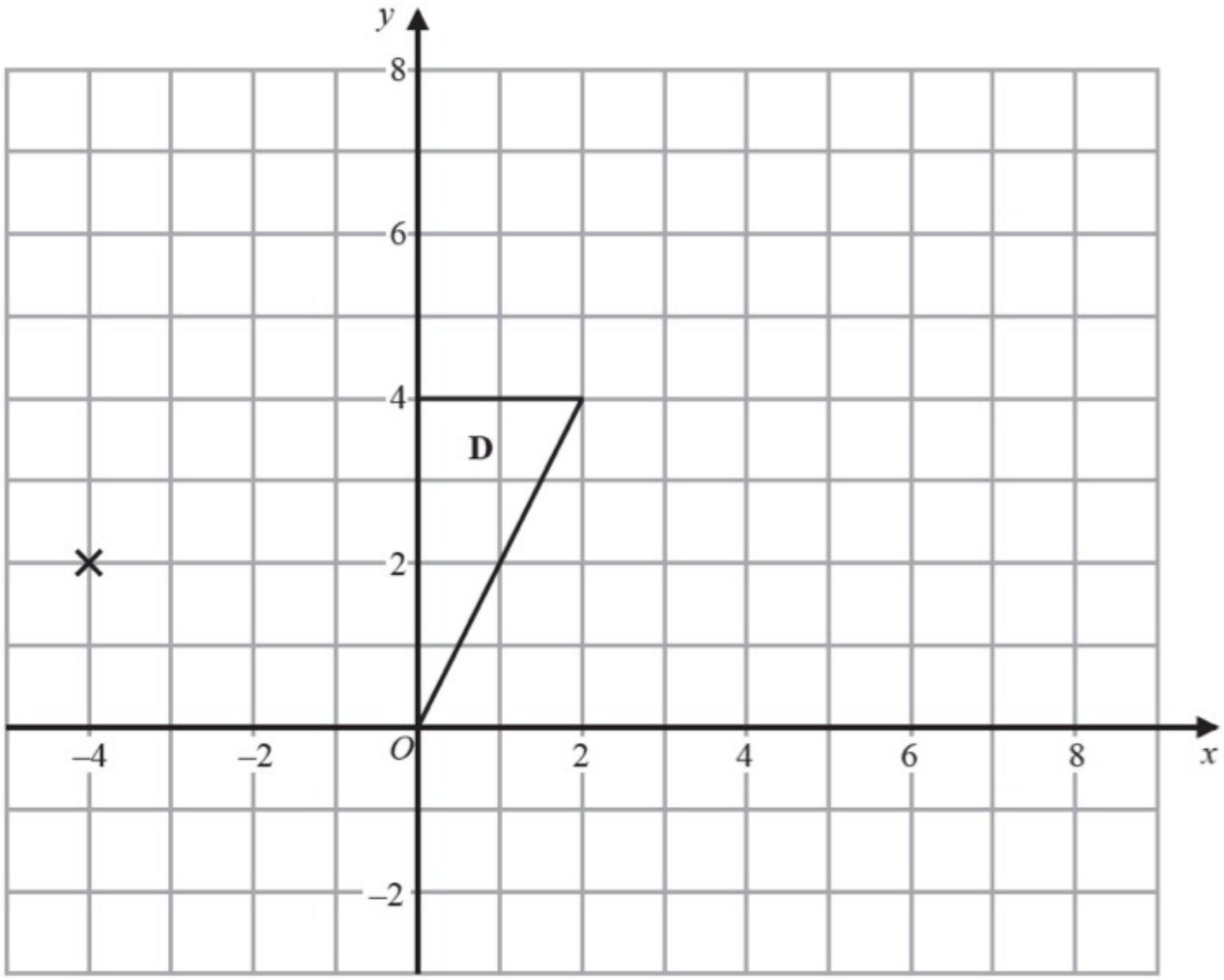
(a) Describe fully the single transformation that maps triangle **A** onto triangle **B**.

(3)

(b) On the grid, translate triangle **A** by the vector $\begin{pmatrix} 2 \\ -5 \end{pmatrix}$

Label the new triangle **C**.

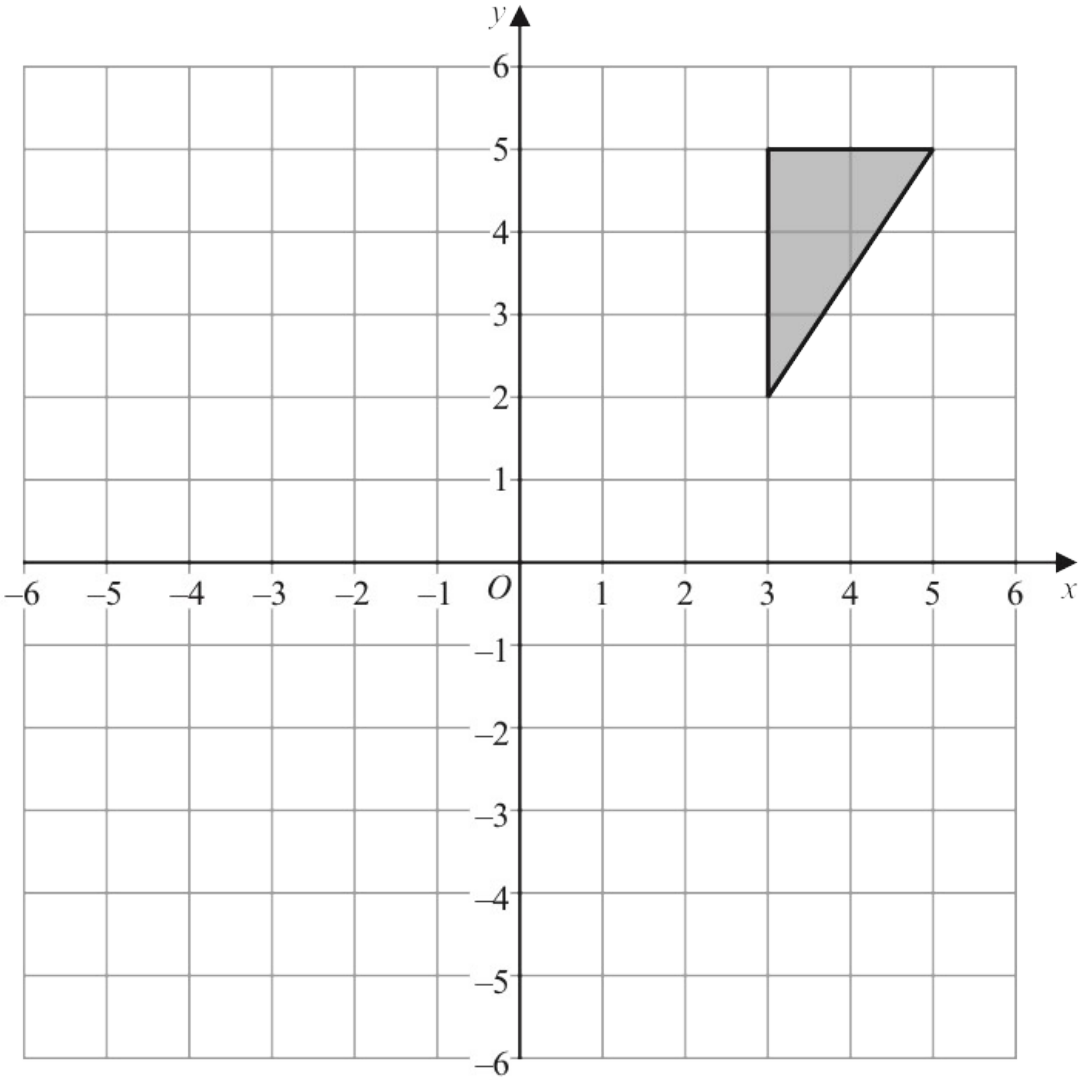
(1)



(c) On the grid, enlarge triangle **D** with scale factor $\frac{1}{2}$ and centre $(-4, 2)$

(2)

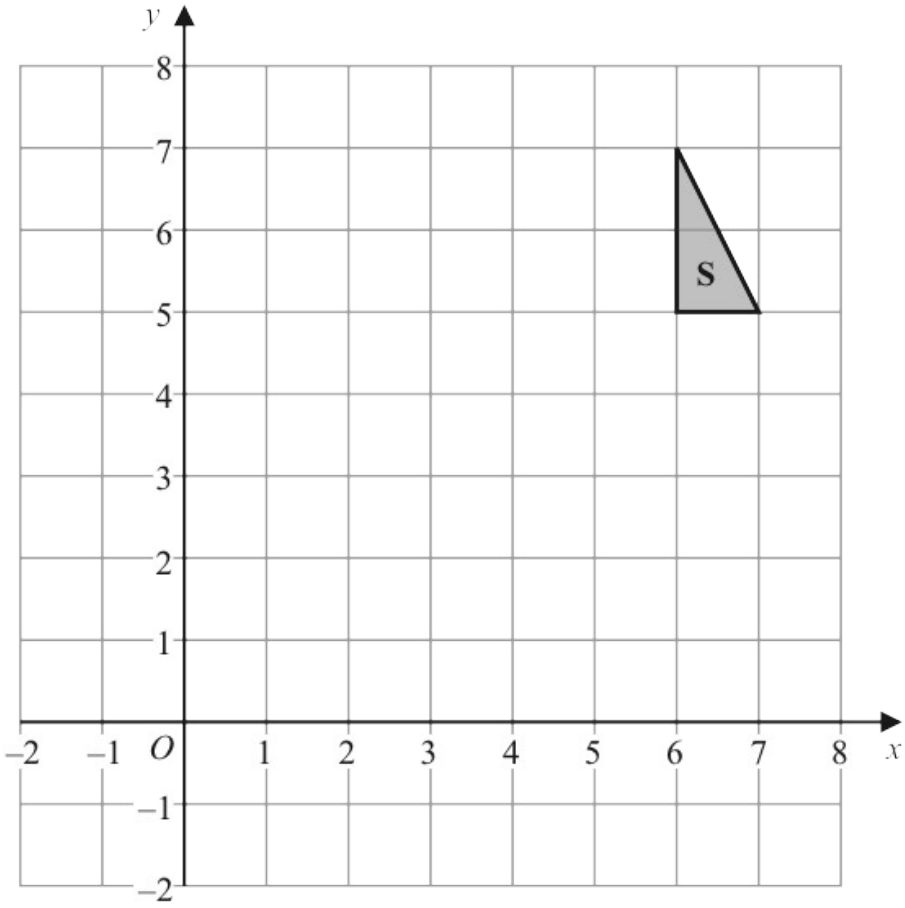
7



Reflect the shaded triangle in the line $y = 1$

(Total for Question 7 is 2 marks)

11 Here is a triangle **S** drawn on a grid of squares.



(a) On the grid, reflect triangle **S** in the line with equation $x = 5$
Label the new triangle **T**.

(2)

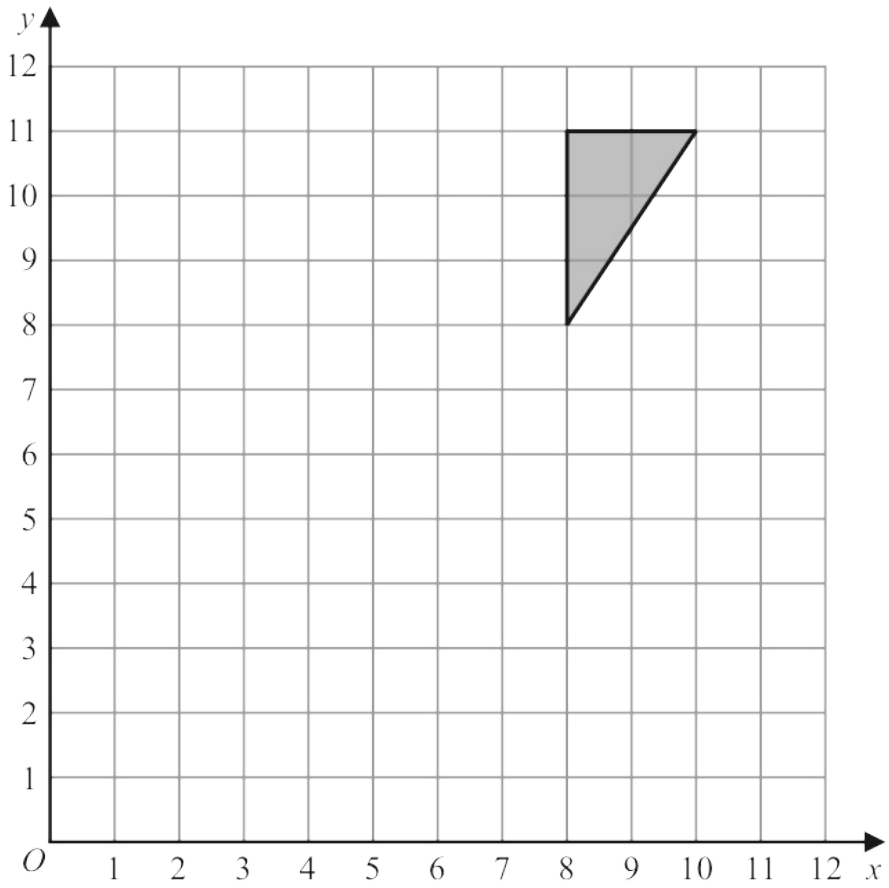
(b) On the grid, reflect triangle **T** in the line with equation $x = 2$
Label the new triangle **U**.

(1)

(c) Describe fully the single transformation that maps triangle **S** onto triangle **U**.

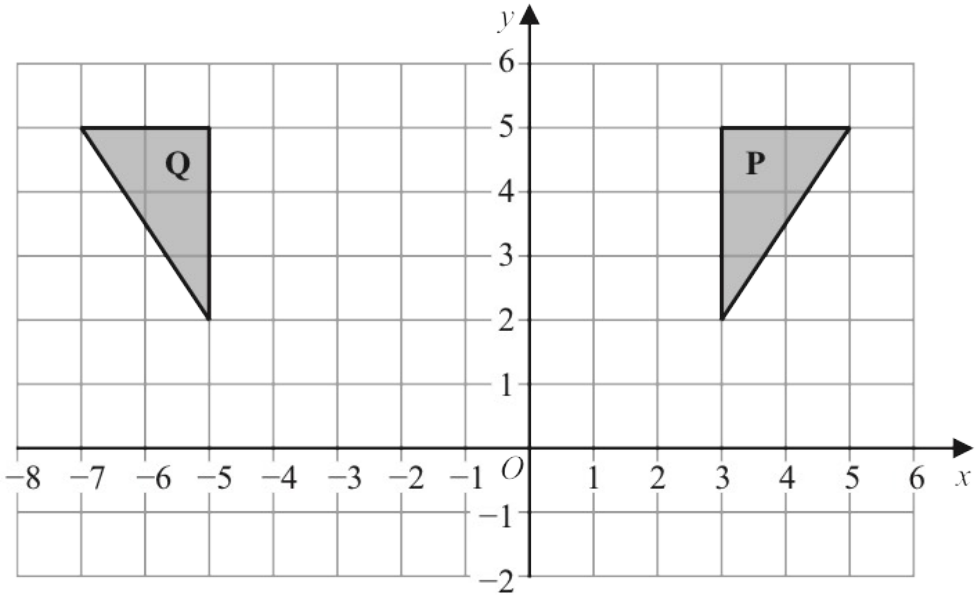
(2)

11



(a) On the grid above, rotate the triangle 180° about (7, 6)

(2)



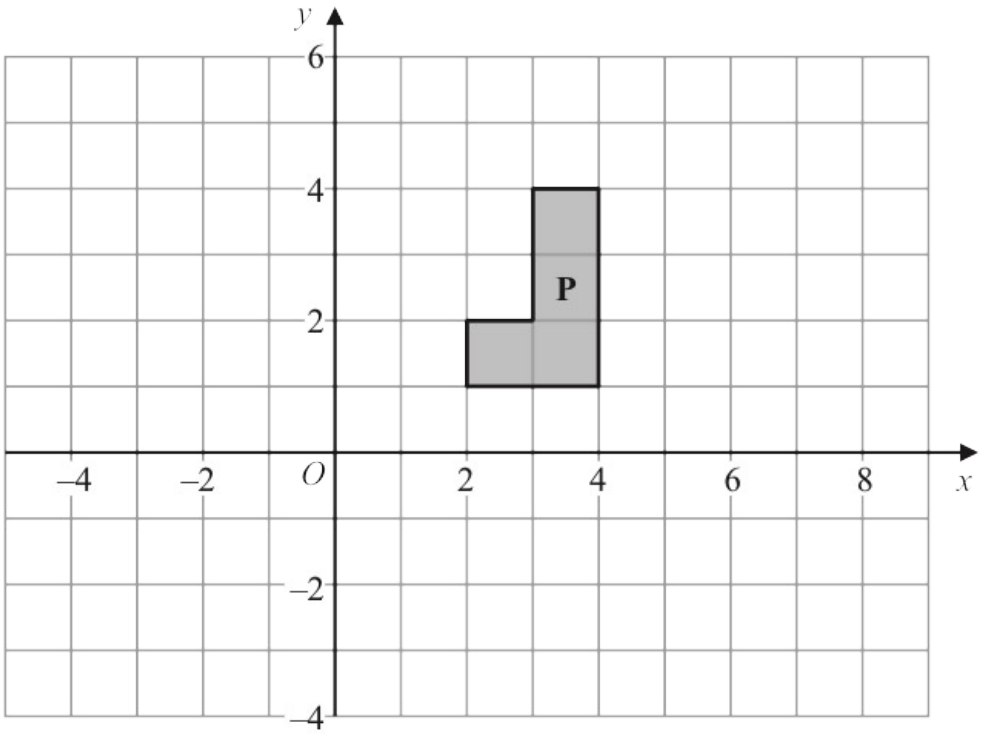
(b) Describe fully the single transformation that maps triangle **P** onto triangle **Q**.

.....

.....

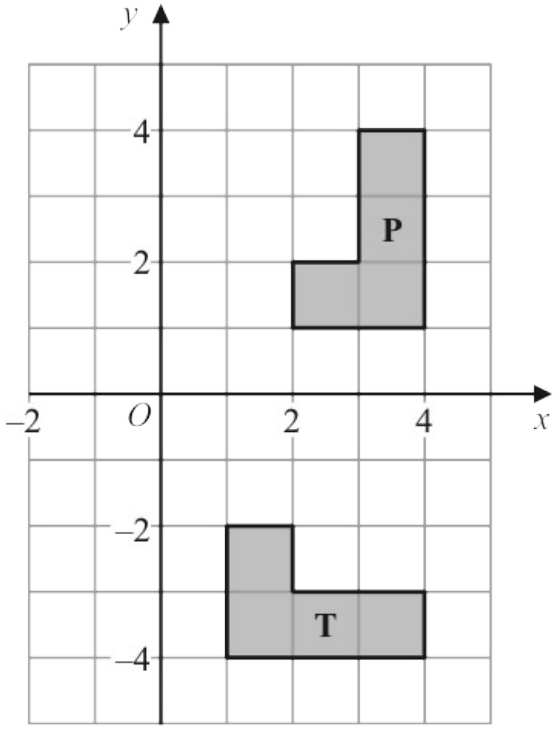
(2)

14



(a) On the grid above, translate shape **P** by the vector $\begin{pmatrix} -5 \\ 2 \end{pmatrix}$

(1)



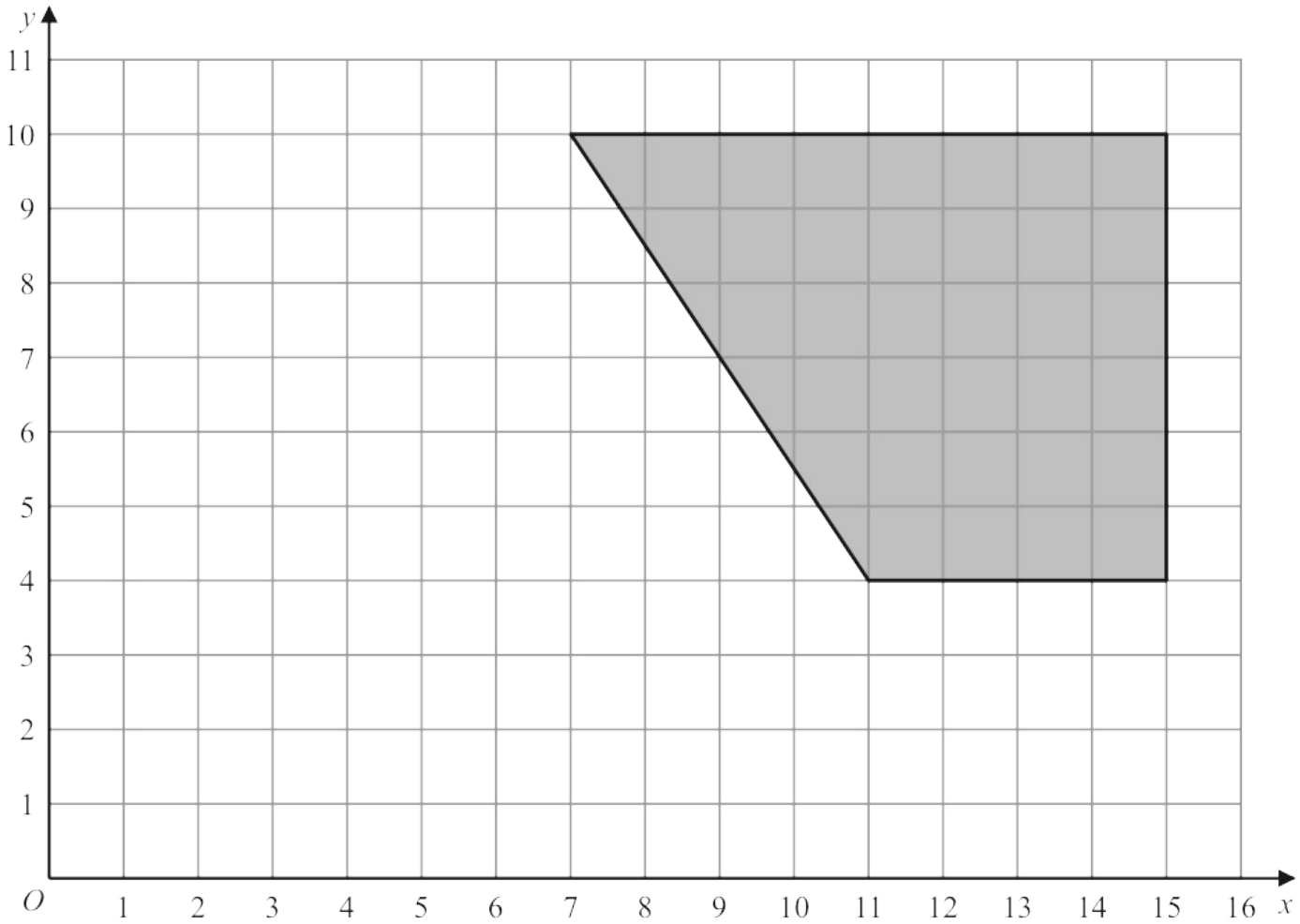
(b) Describe fully the single transformation that maps shape **P** onto shape **T**.

.....

.....

(3)

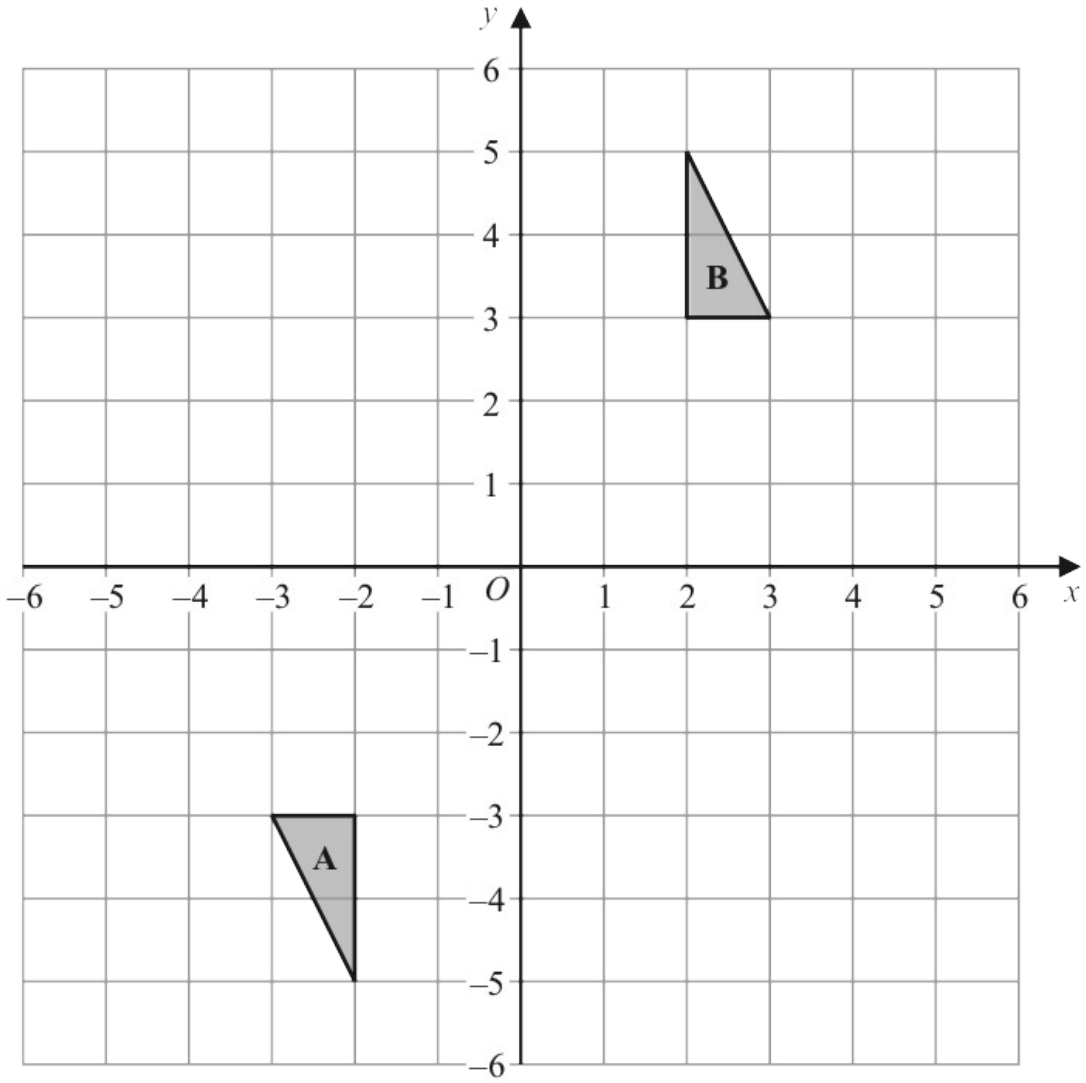
19



On the grid, enlarge the shaded shape with scale factor $\frac{1}{2}$ and centre (1, 2)

(Total for Question 19 is 2 marks)

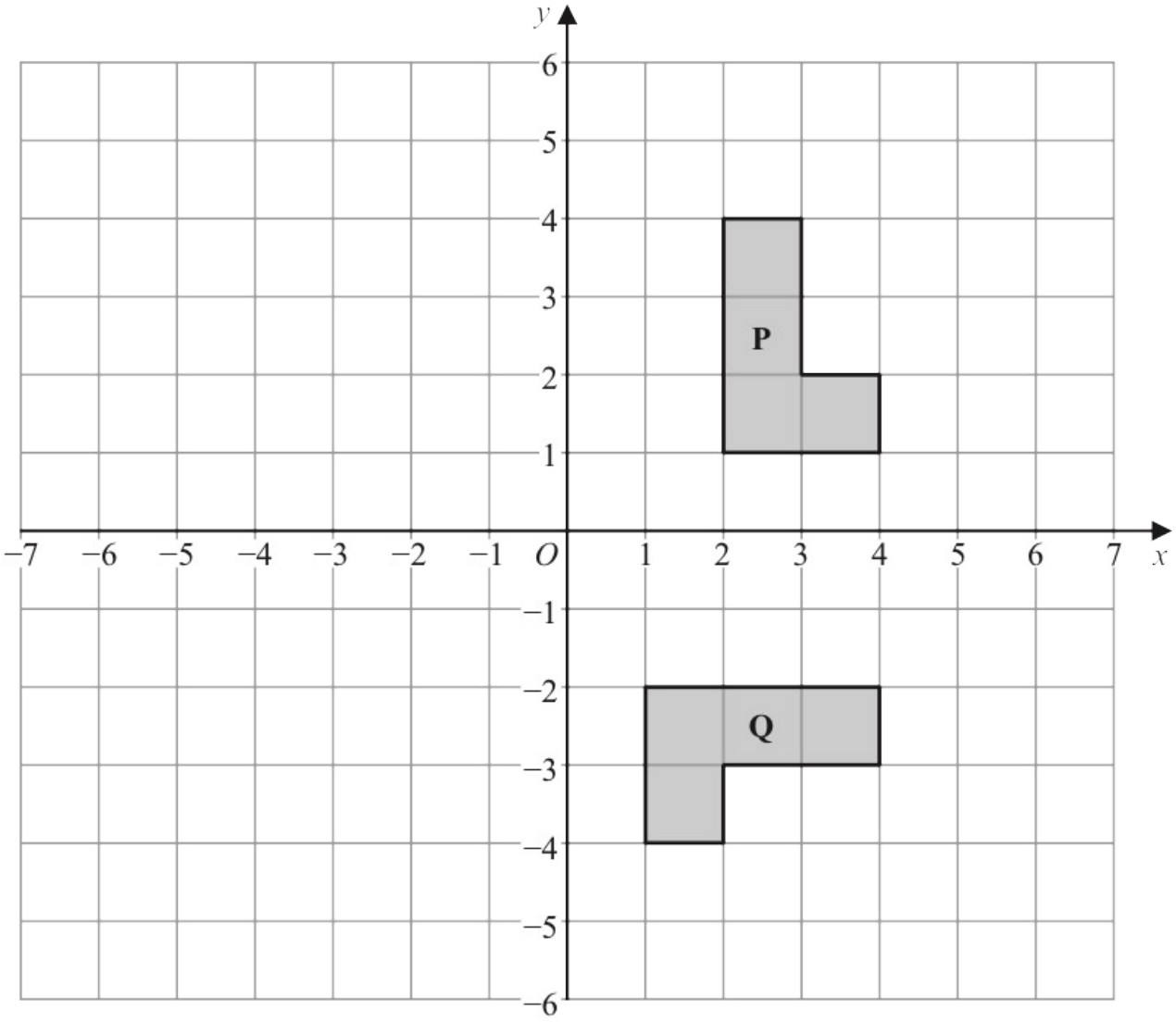
14



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

(Total for Question 14 is 2 marks)

13



(a) Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....

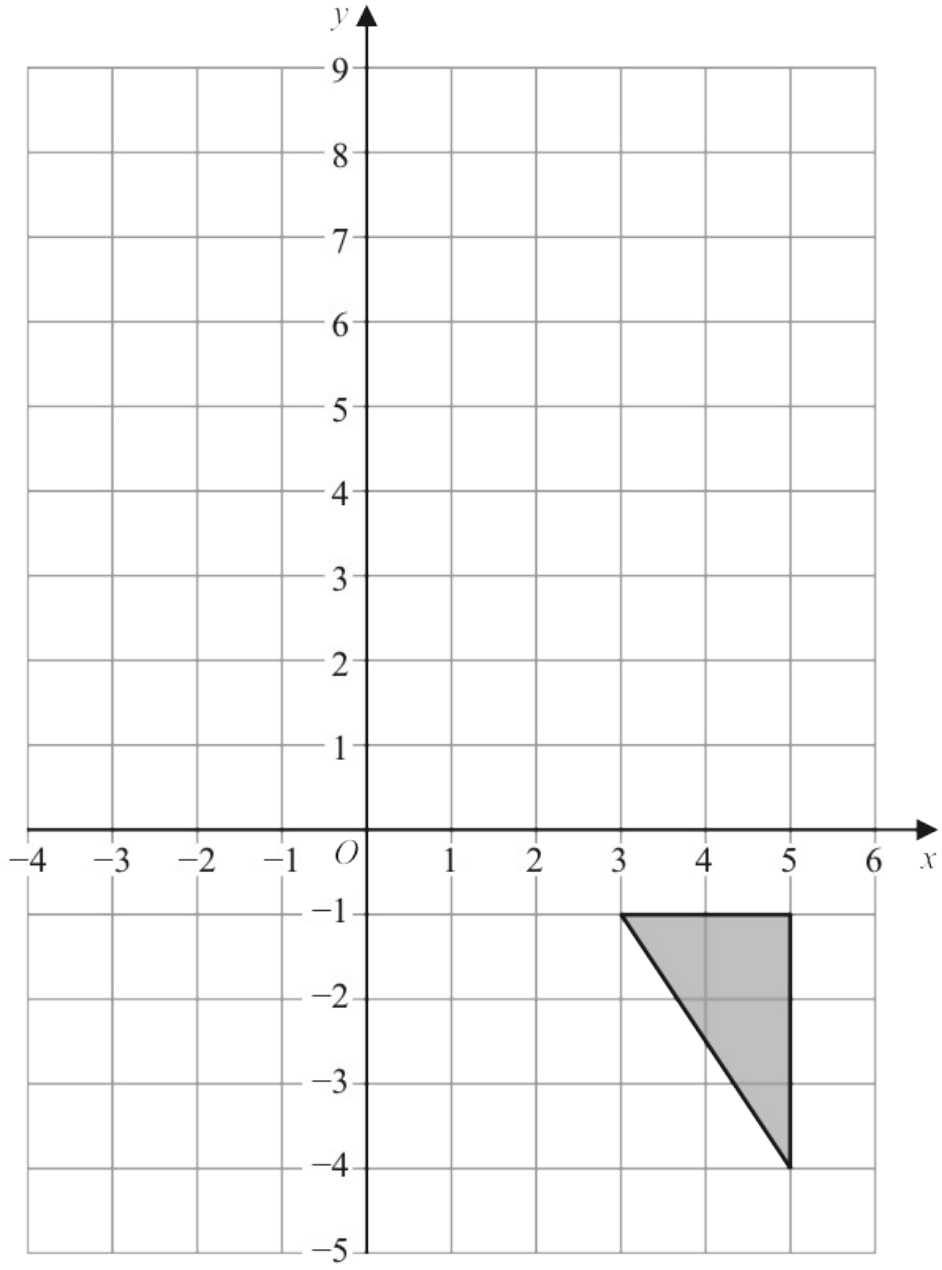
.....

(3)

(b) On the grid, reflect shape **P** in the line $x = -1$
Label the new shape **R**.

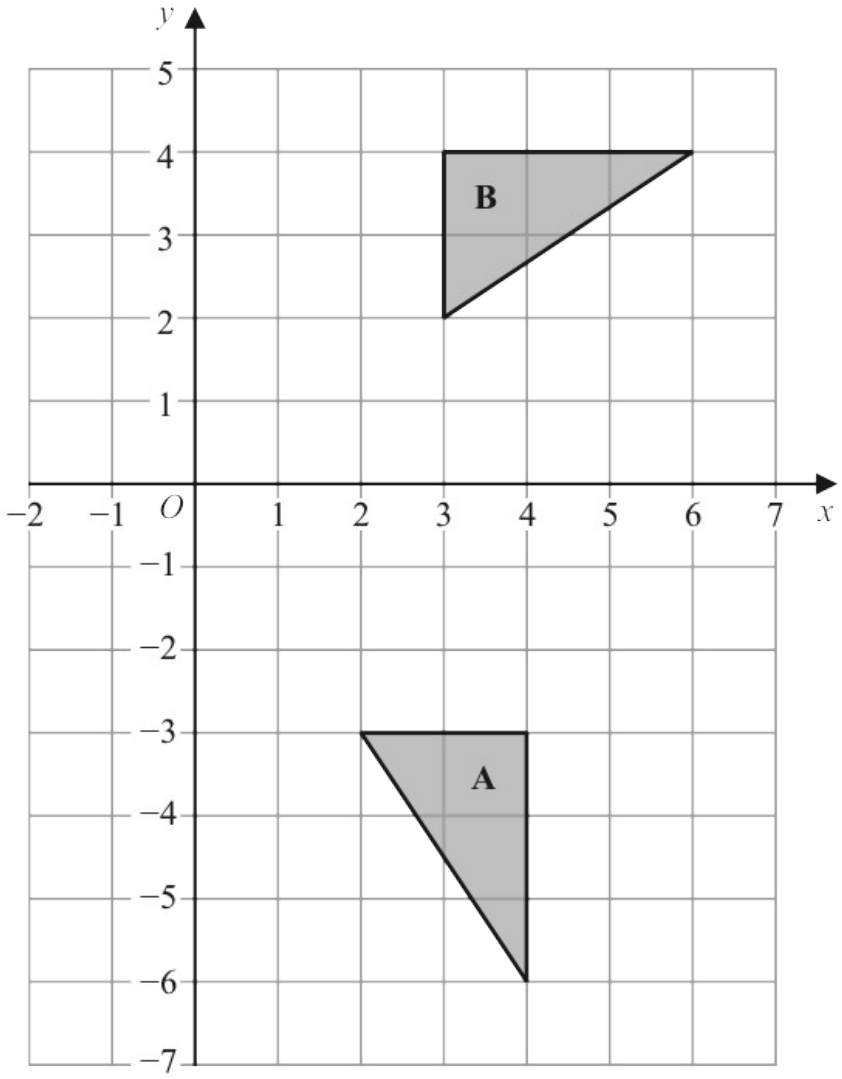
(2)

13



(a) On the grid, reflect the shaded triangle in the line with equation $y = 2$

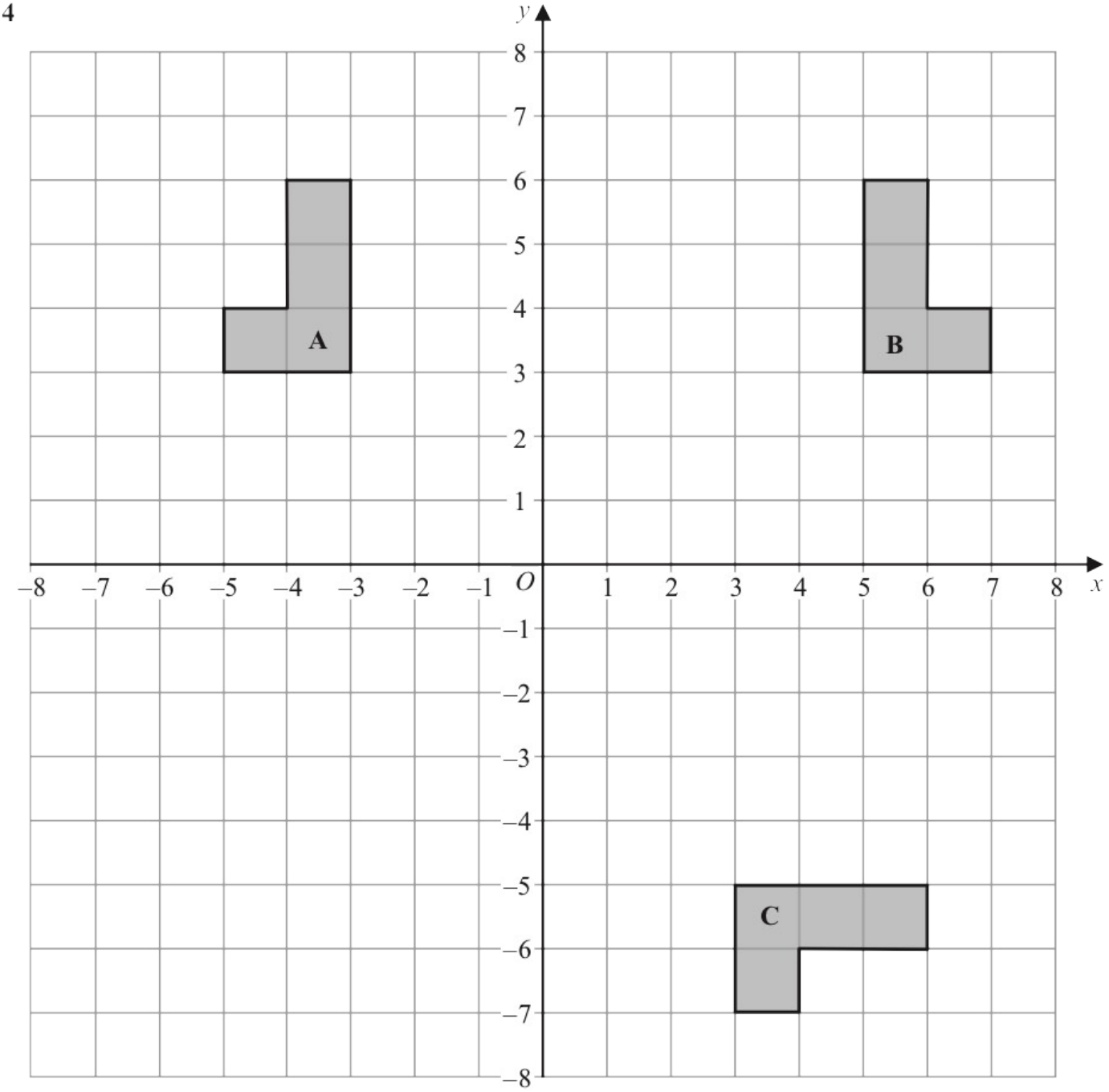
(2)



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

(3)

14



(a) Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

.....

(2)

(b) Describe fully the single transformation that maps shape **B** onto shape **C**.

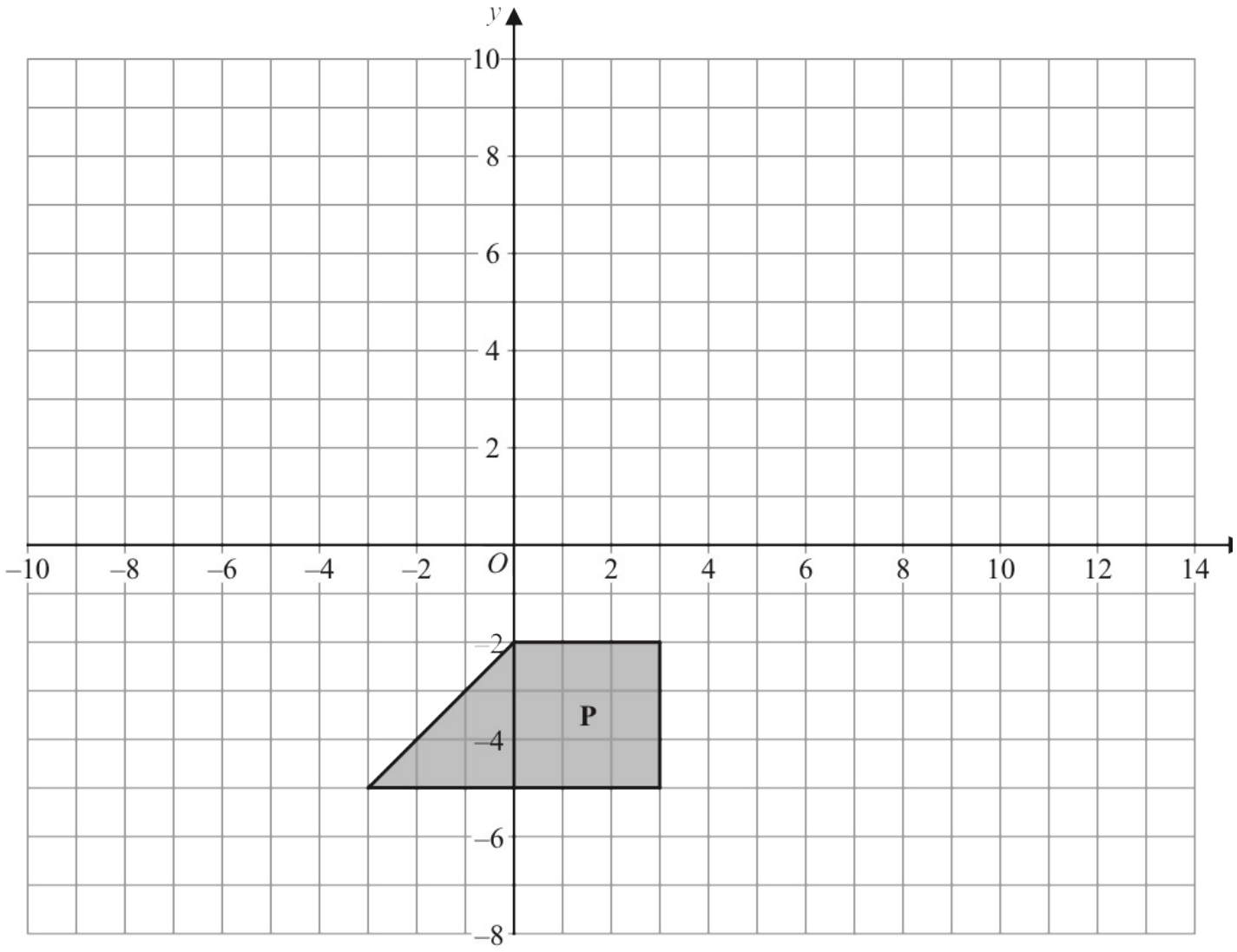
.....

.....

.....

(3)

16 Here is a shape **P** drawn on a grid of squares.



(a) On the grid, rotate shape **P** 180° about the point (–3, 2)
Label the new shape **Q**.

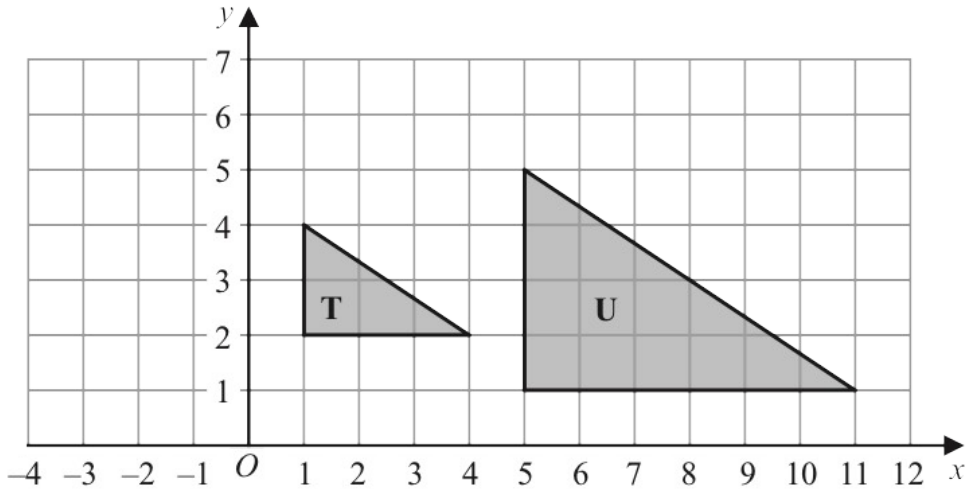
(2)

(b) On the grid, translate shape **P** by the vector $\begin{pmatrix} 10 \\ 8 \end{pmatrix}$

Label the new shape **R**.

(1)

Here are triangle **T** and triangle **U** drawn on a grid of squares.



(c) Describe fully the single transformation that maps triangle **T** onto triangle **U**.

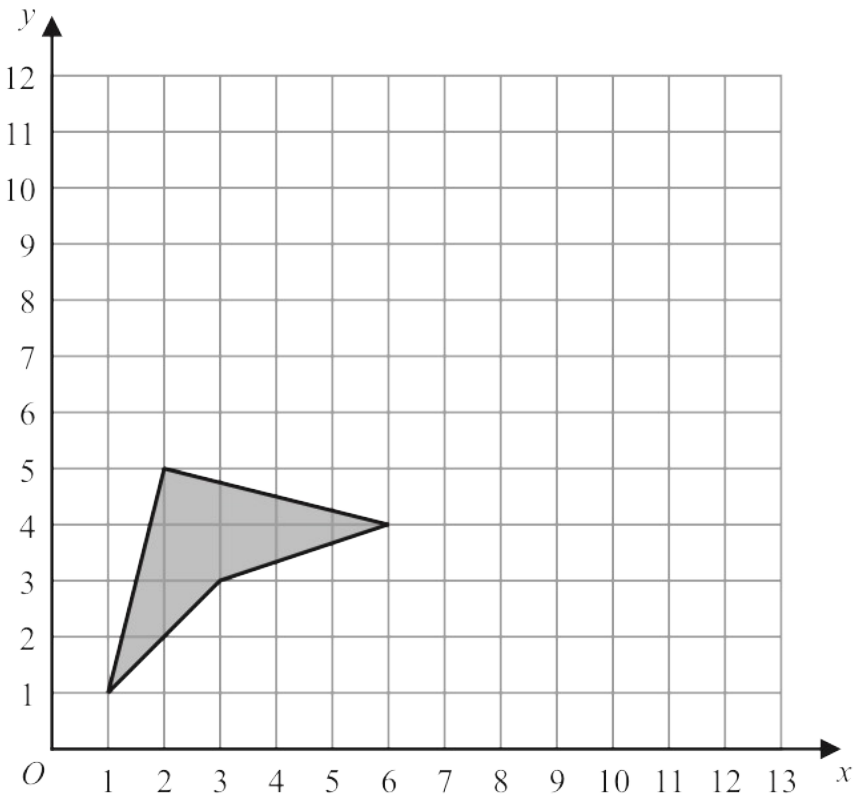
.....

.....

(3)

(Total for Question 16 is 6 marks)

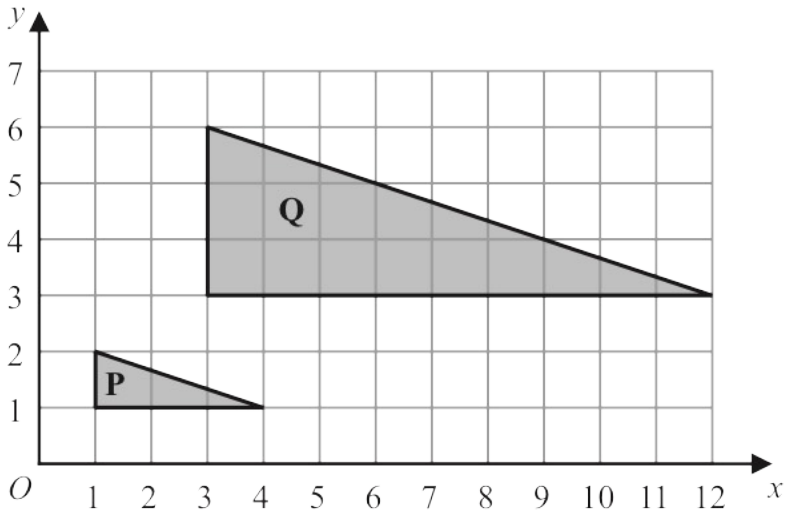
12 The diagram shows a shaded shape on a grid.



(a) On the grid, reflect the shape in the line with equation $x = 6$

(2)

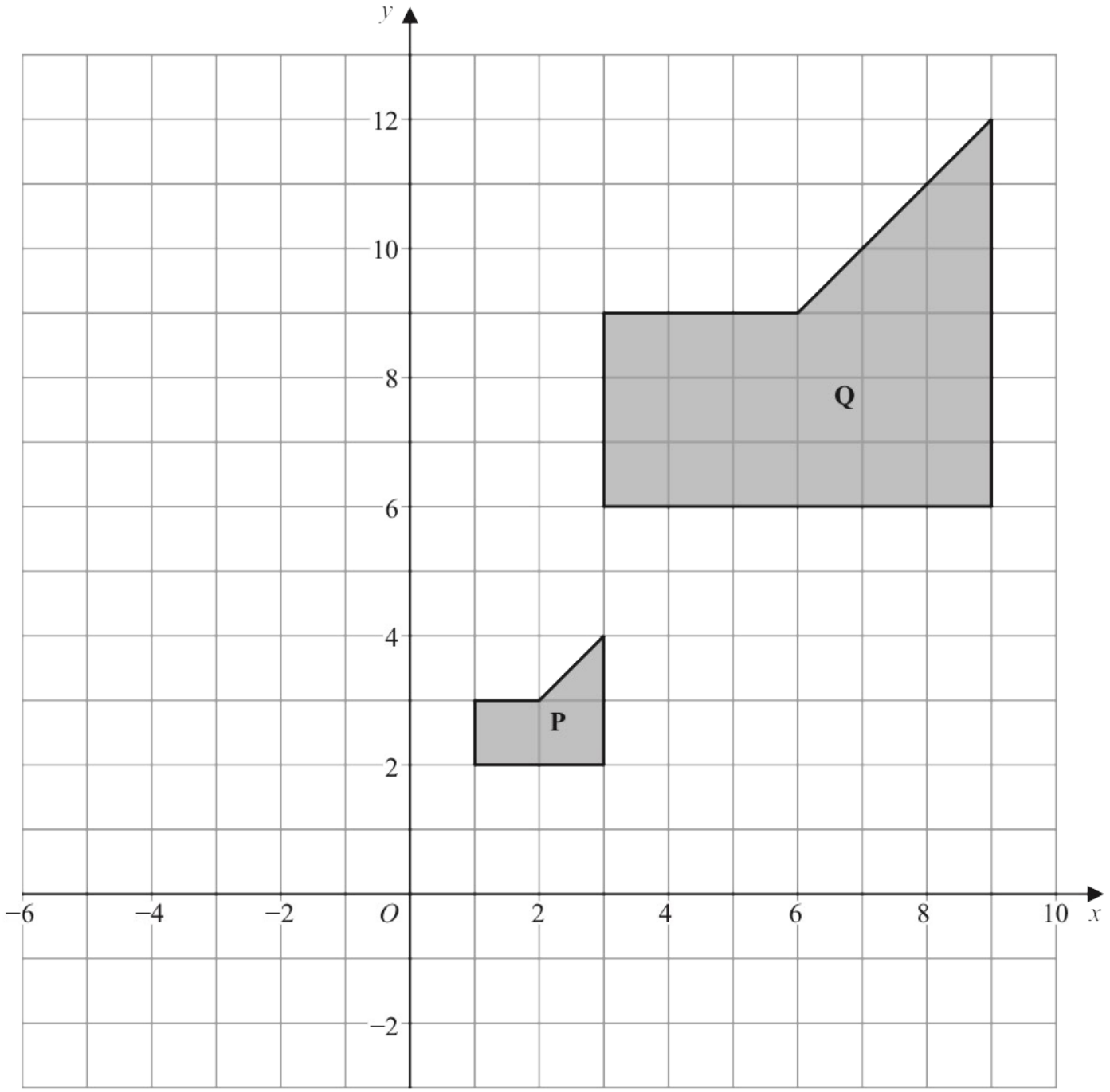
The diagram below shows triangle **P** and triangle **Q** drawn on a grid.



(b) Describe fully the single transformation that maps triangle **P** onto triangle **Q**.

(3)

12



(a) Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....

.....

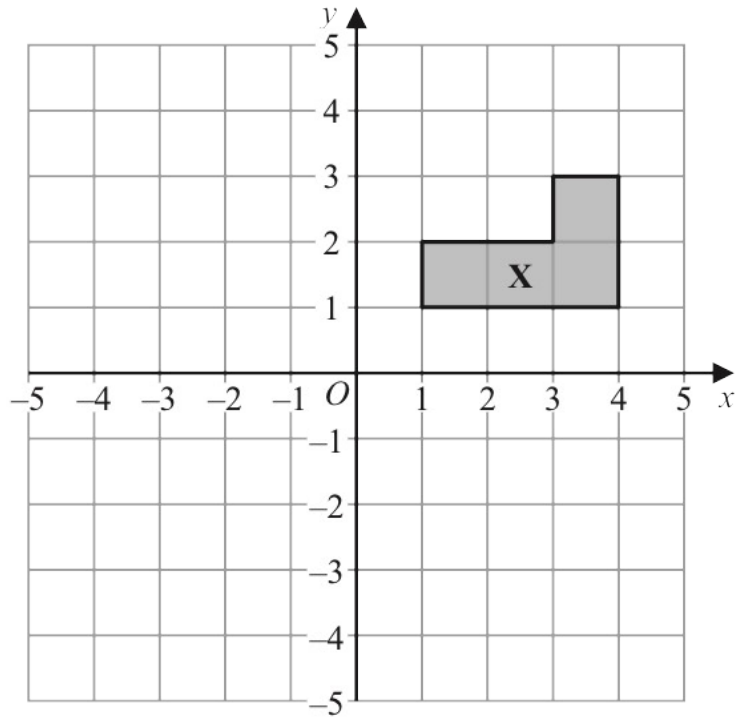
.....

(3)

(b) On the grid, reflect shape **P** in the line with equation $x = 5$
Label your shape **R**.

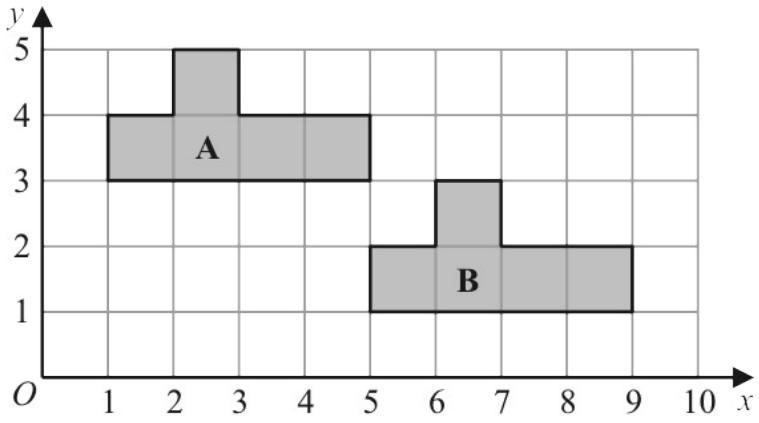
(2)

15



(a) On the grid above, rotate shape **X** 90° clockwise about O

(2)



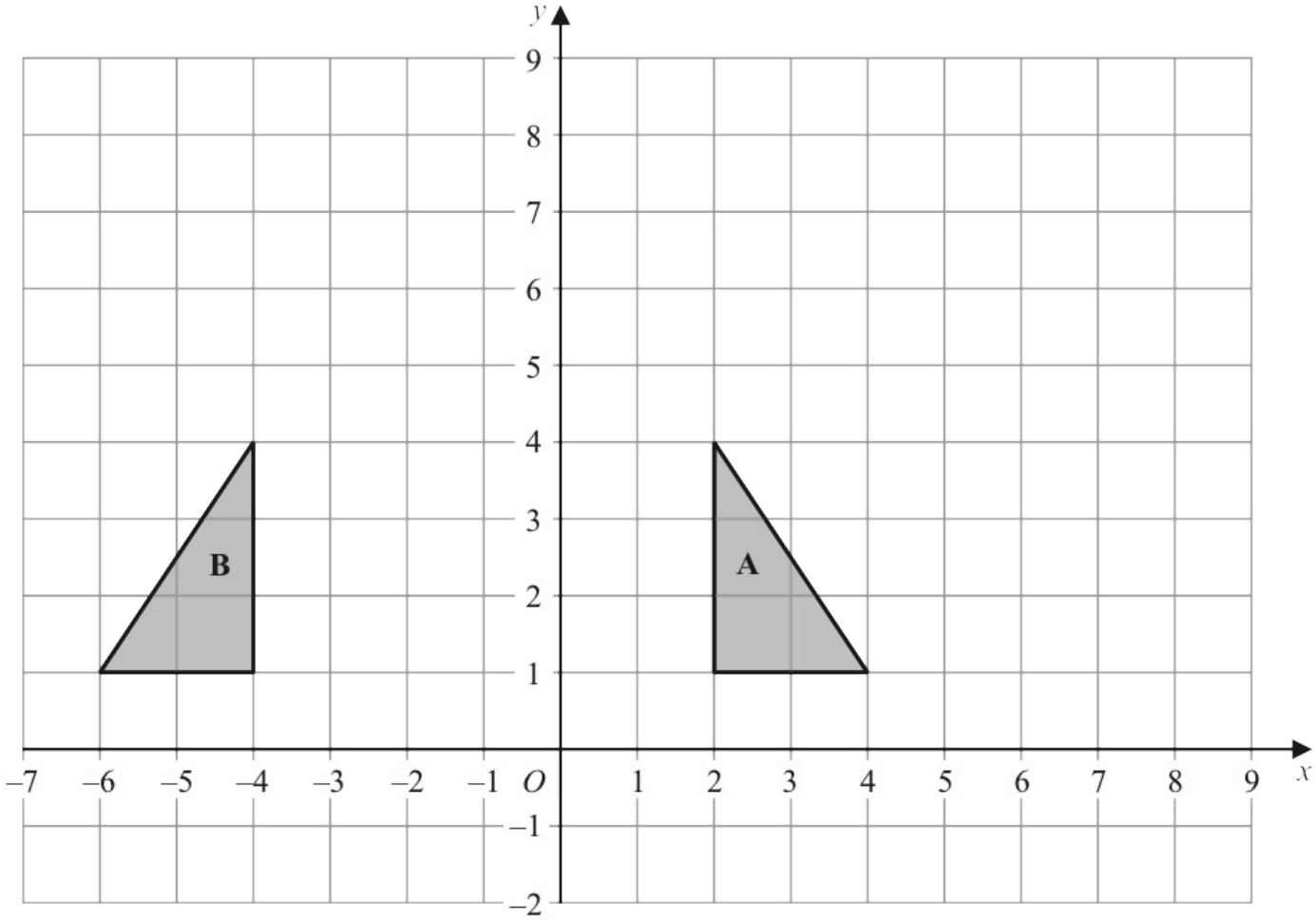
(b) Describe fully the single transformation that maps shape **A** onto shape **B**

.....

.....

(2)

12



(a) Describe fully the single transformation that maps triangle **A** onto triangle **B**

.....

.....

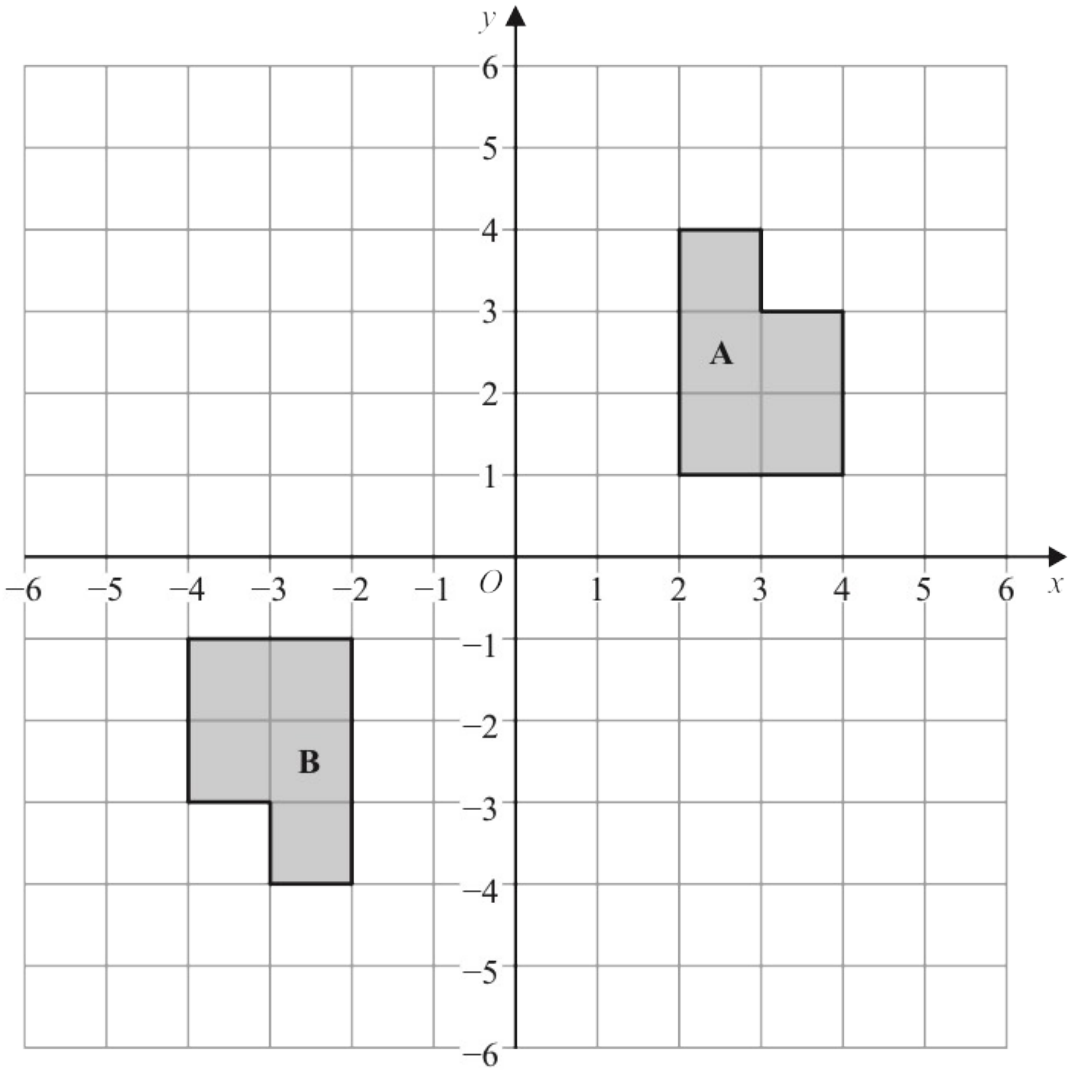
(2)

(b) On the grid above, enlarge triangle **A** with scale factor 2 and centre O
Label your triangle **C**

(2)

(Total for Question 12 is 4 marks)

14



(a) Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

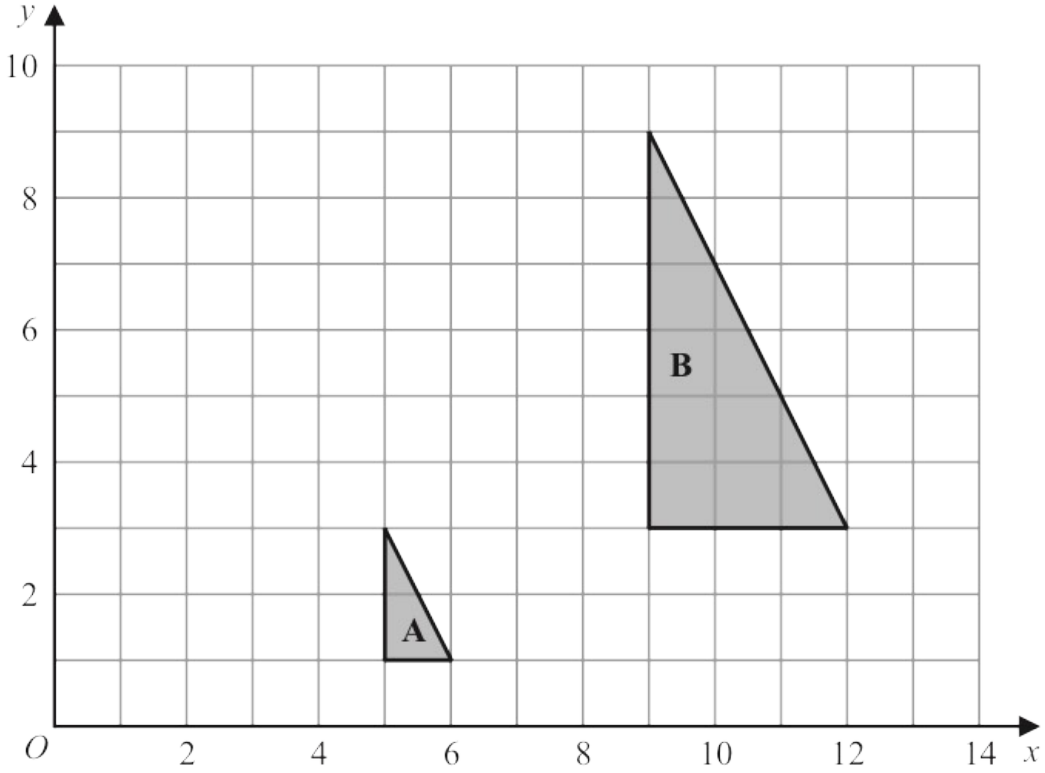
.....

(2)

(b) On the grid, reflect shape **A** in the line with equation $x = -1$

(2)

18



(a) Describe fully the single transformation that maps triangle **A** onto triangle **B**

.....

.....

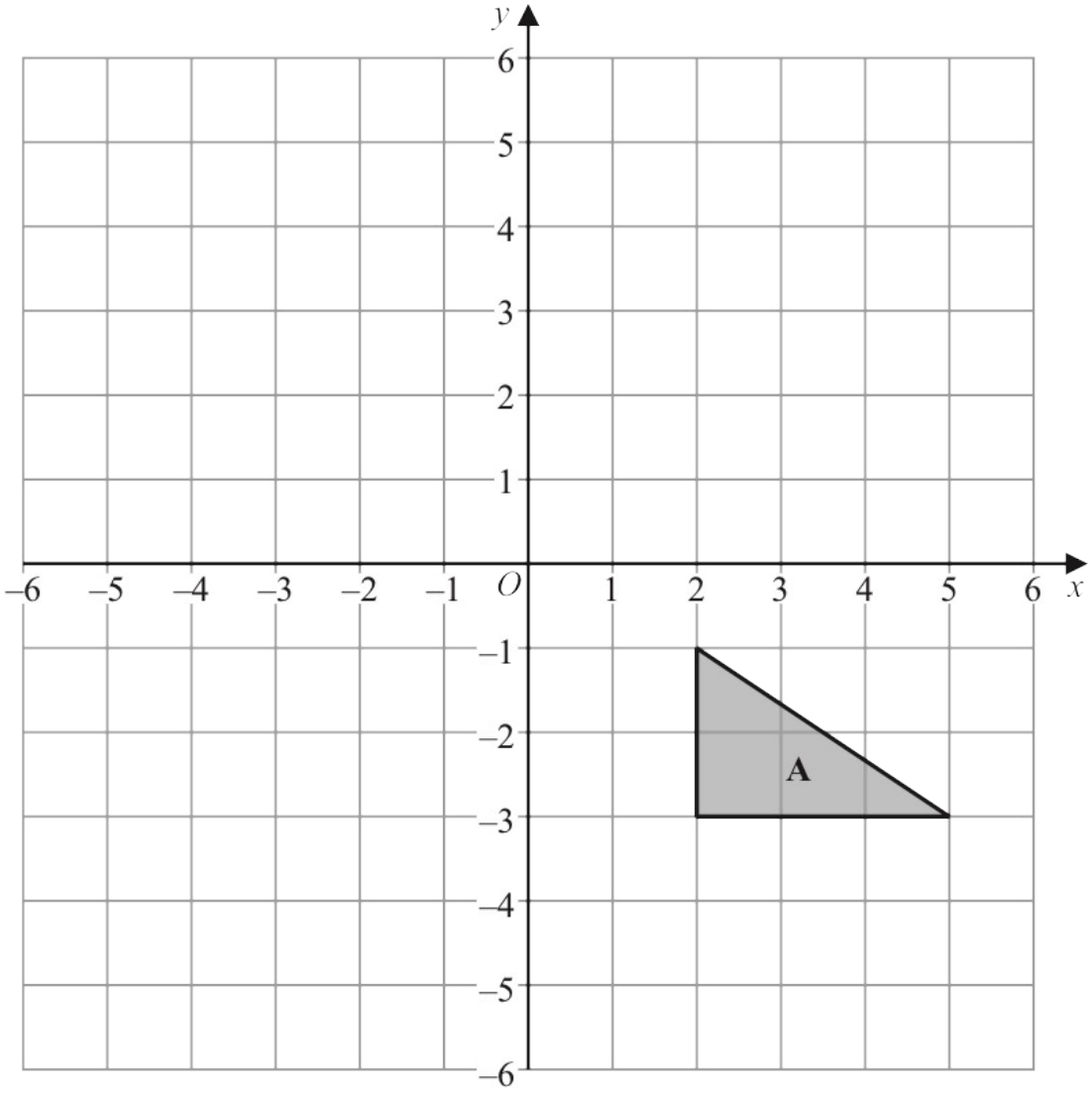
(3)

(b) On the grid above, translate triangle **A** by the vector $\begin{pmatrix} -4 \\ 3 \end{pmatrix}$

Label your triangle **C**

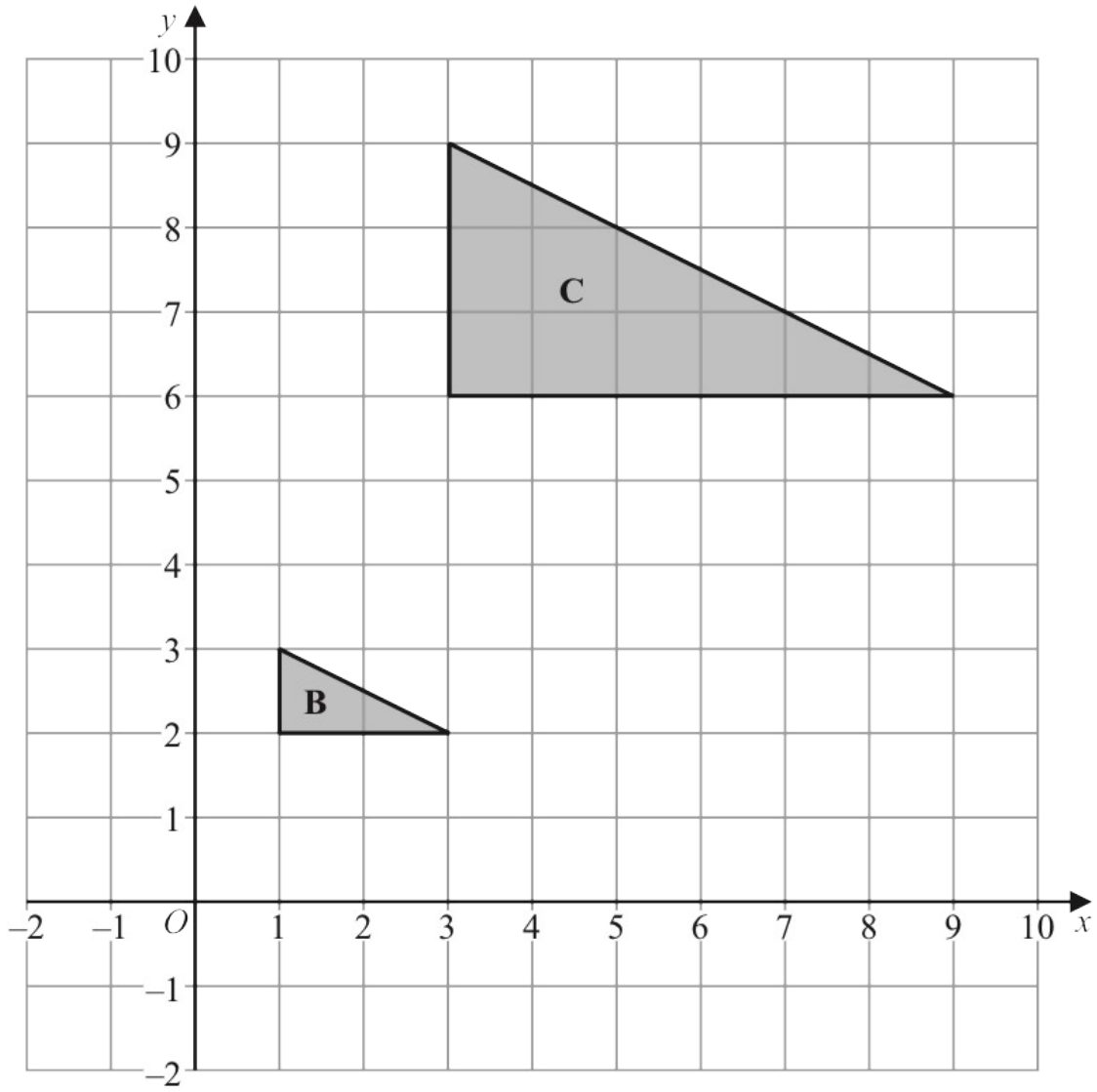
(1)

14



(a) On the grid, rotate triangle **A** 90° anticlockwise about centre O

(2)



(b) Describe fully the single transformation that maps triangle **B** onto triangle **C**

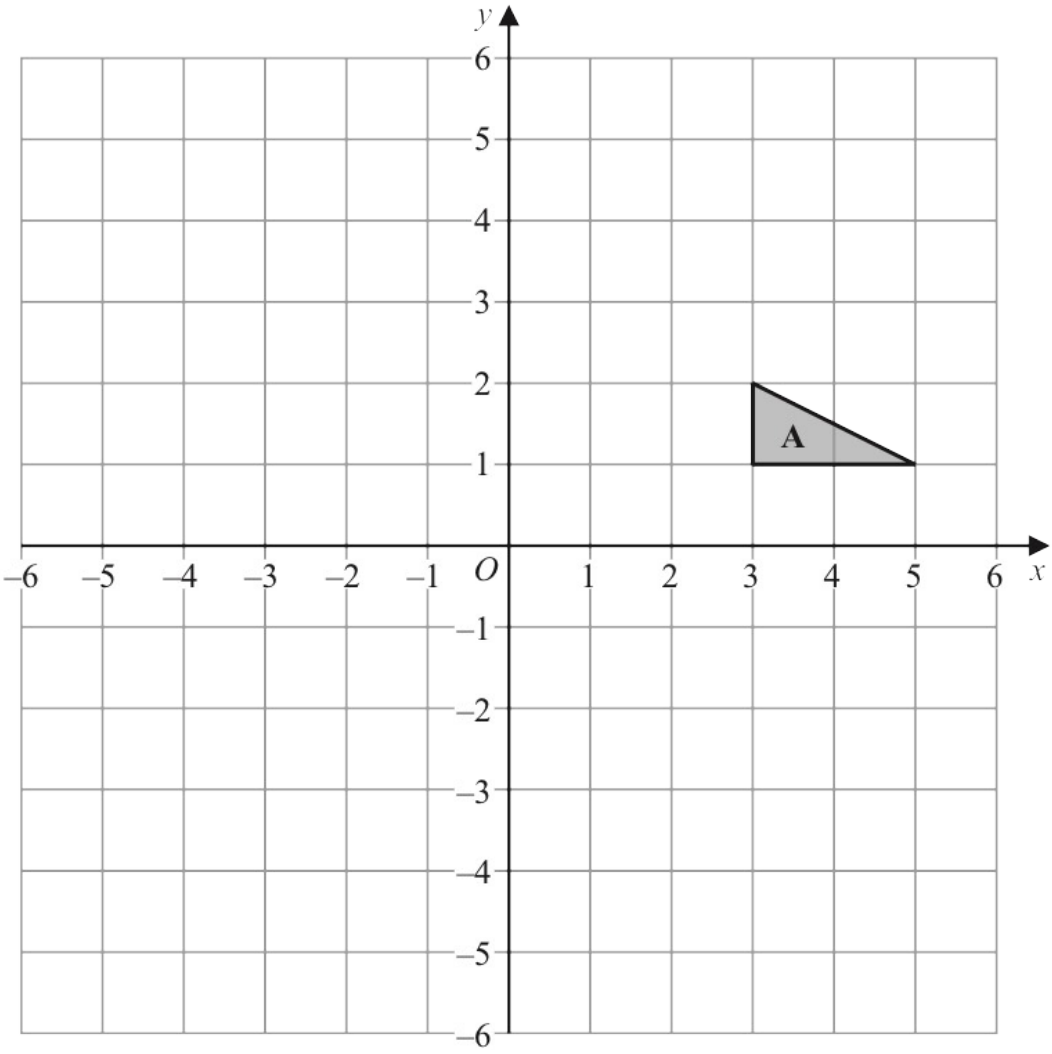
.....

.....

.....

(2)

16



(a) On the grid, rotate triangle **A** 180° about (1, –1)
Label the new triangle **B**

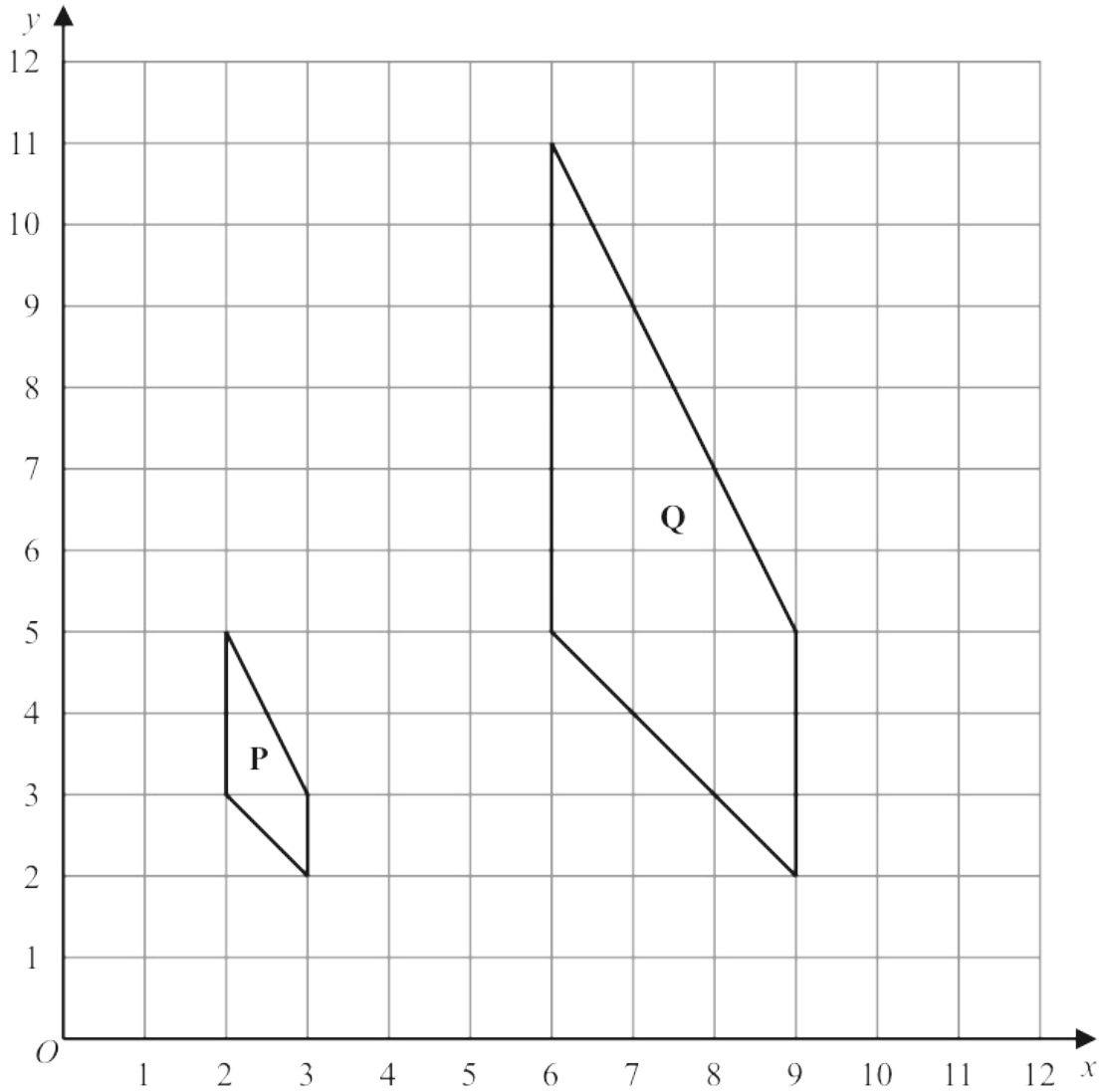
(2)

(b) On the grid, translate triangle **A** by the vector $\begin{pmatrix} -7 \\ 3 \end{pmatrix}$

Label the new triangle **C**

(1)

The diagram shows shape **P** and shape **Q** drawn on a grid.



(b) Describe fully the single transformation that maps shape **P** onto shape **Q**

.....

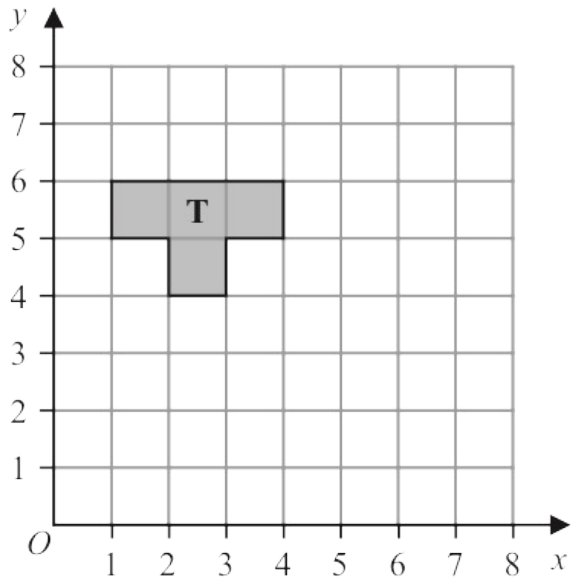
.....

(3)

(c) On the grid above, rotate shape **P** 90° clockwise about (3, 5)
Label your shape **R**

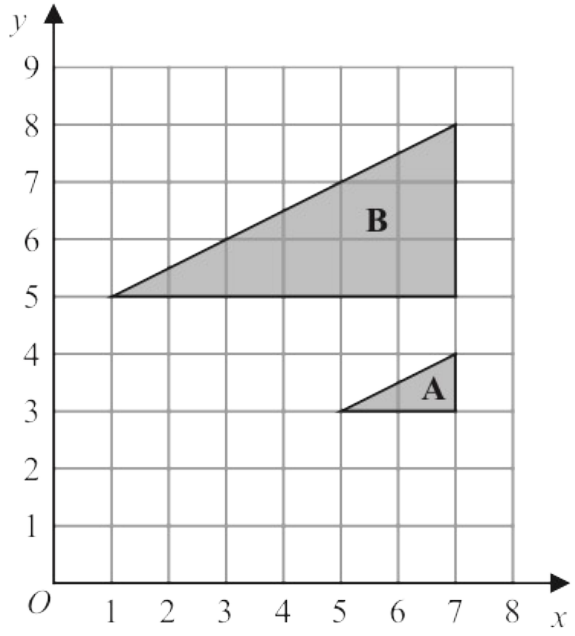
(2)

19



(a) Reflect shape **T** in the line $y = x$

(2)



(b) Describe fully the single transformation that maps triangle **A** onto triangle **B**

.....

.....

(3)