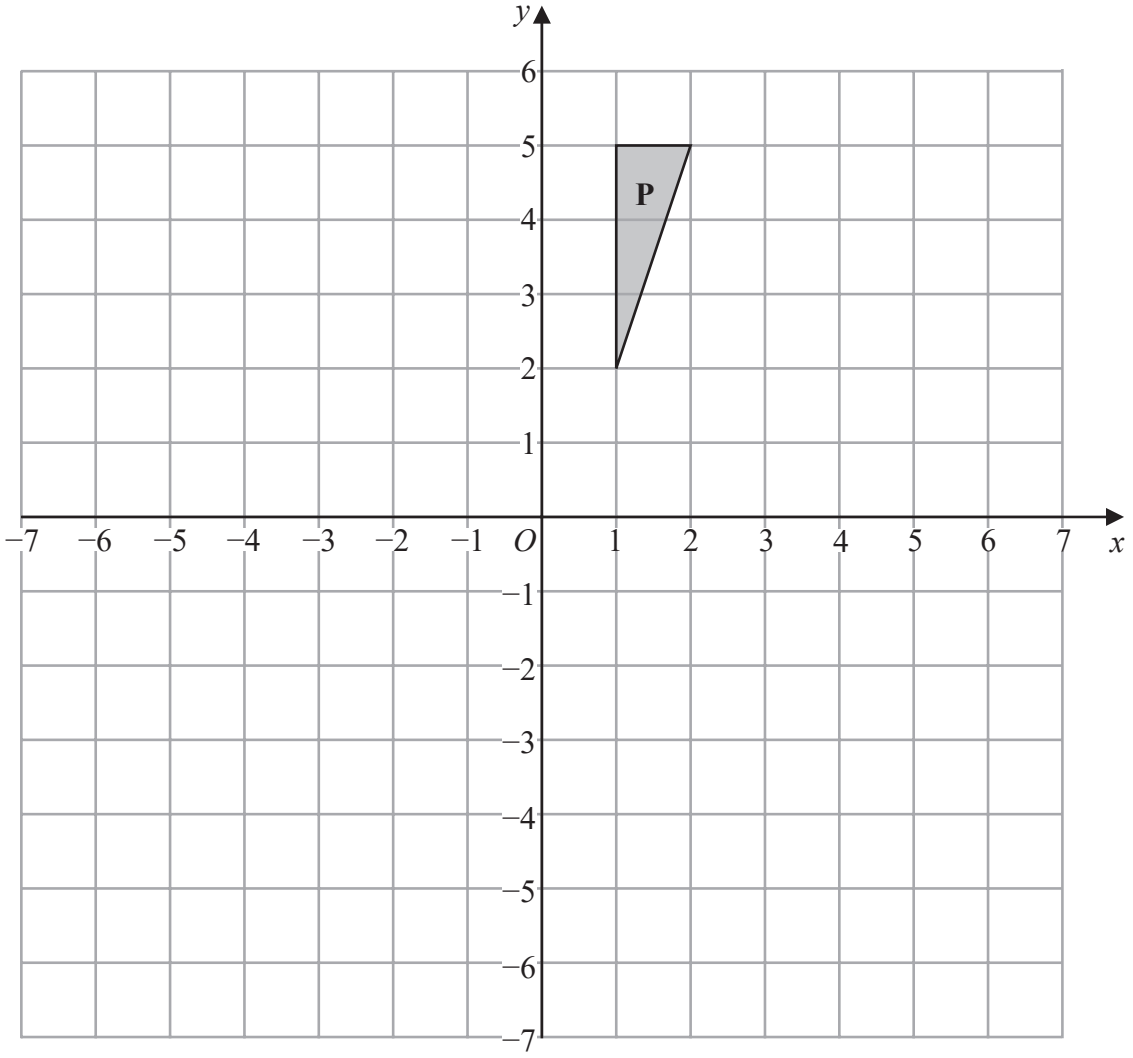
1 The diagram shows a triangle **P** on a grid.



Triangle **P** is rotated 180° about (0, 0) to give triangle **Q**.

Triangle **Q** is translated by $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$ to give triangle **R**.

(a) Describe fully the single transformation that maps triangle **P** onto triangle **R**.

.....

.....

(3)

Under the transformation that maps triangle **P** onto triangle **R**, the point A is invariant.

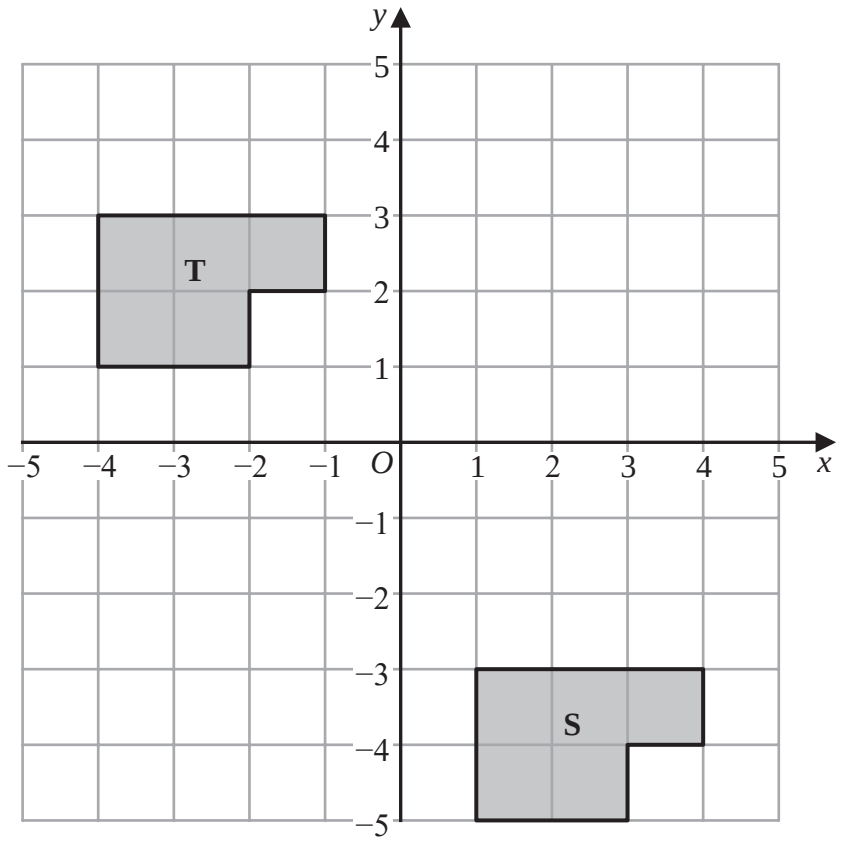
(b) Write down the coordinates of point A.

(..... , ...)

(1)

(Total for Question 1 is 4 marks)

2



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

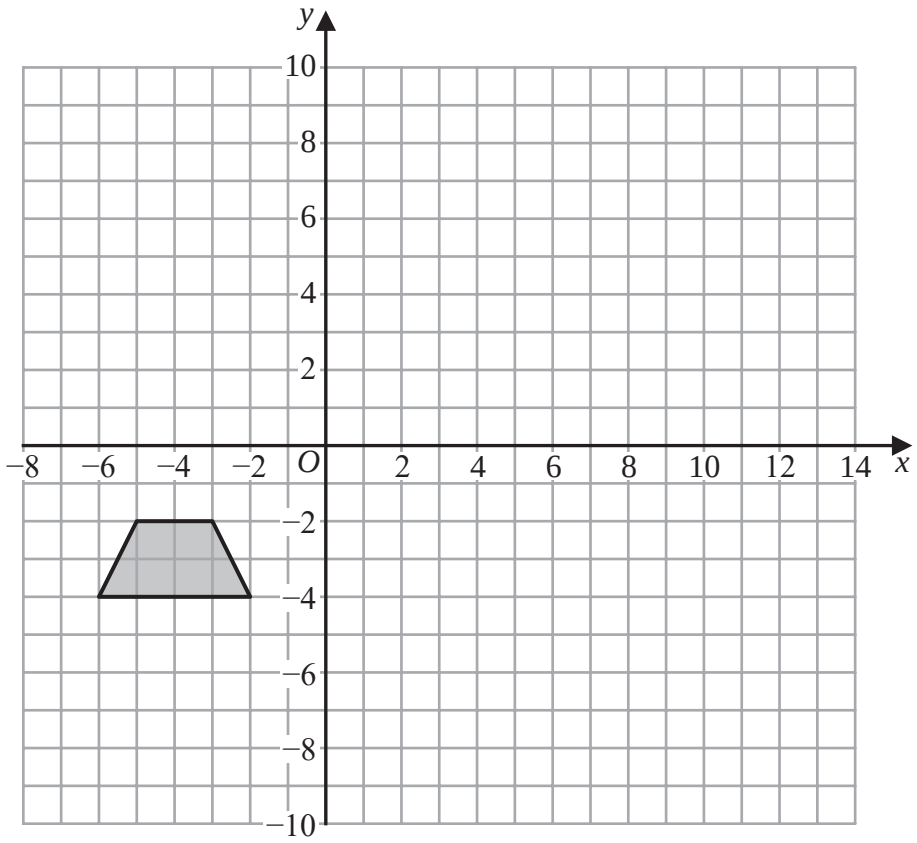
.....

.....

.....

(Total for Question 2 is 2 marks)

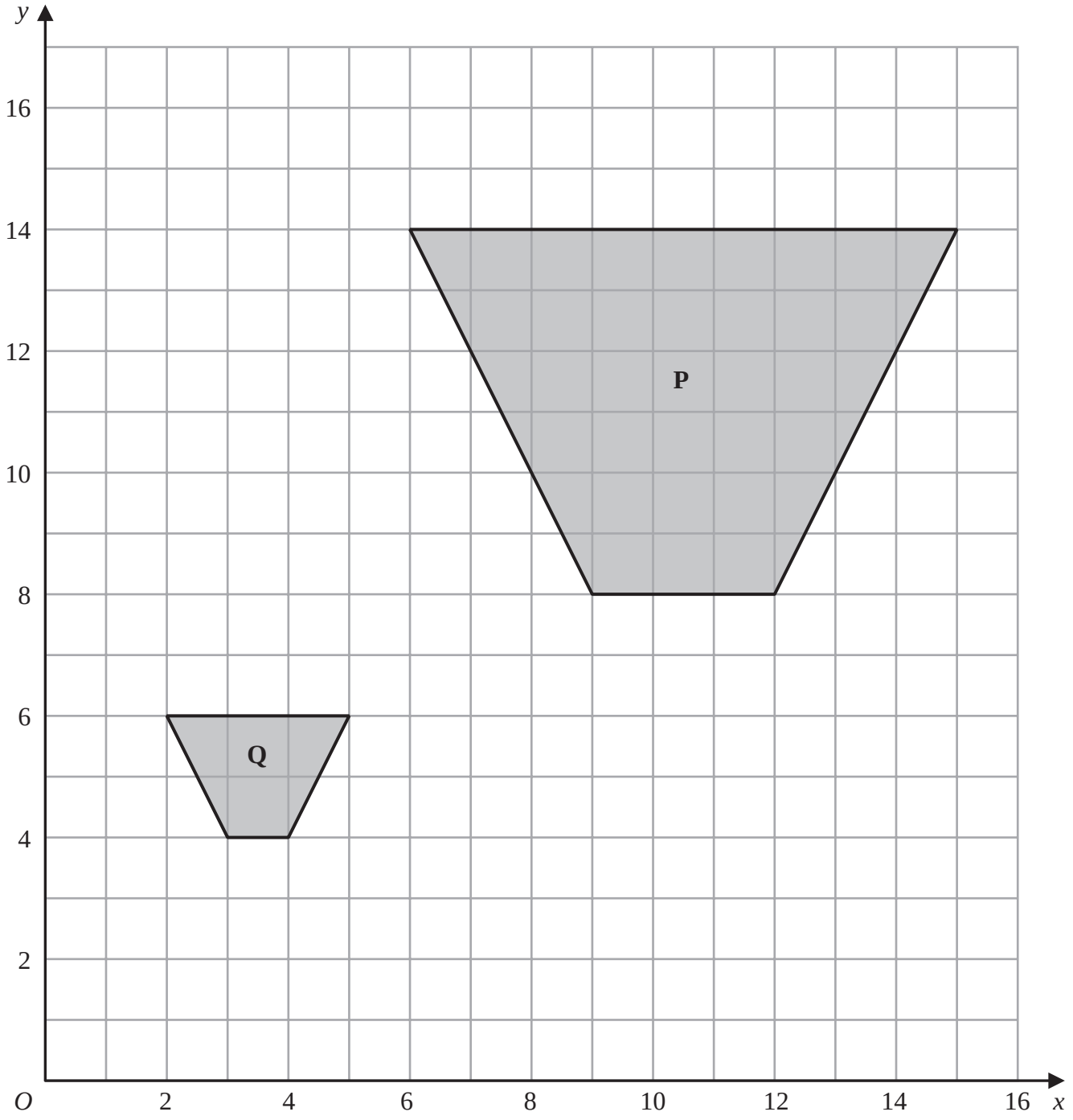
3



Enlarge the shaded shape by scale factor −2 with centre of enlargement (0, 0)

(Total for Question 3 is 2 marks)

4



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

.....

.....

.....

(Total for Question 4 is 2 marks)

5 Shape **A** is reflected in the line with equation $x = 2$ to give shape **B**.
Shape **B** is reflected in the line with equation $x = 6$ to give shape **C**.

Describe fully the **single** transformation that maps shape **A** onto shape **C**.

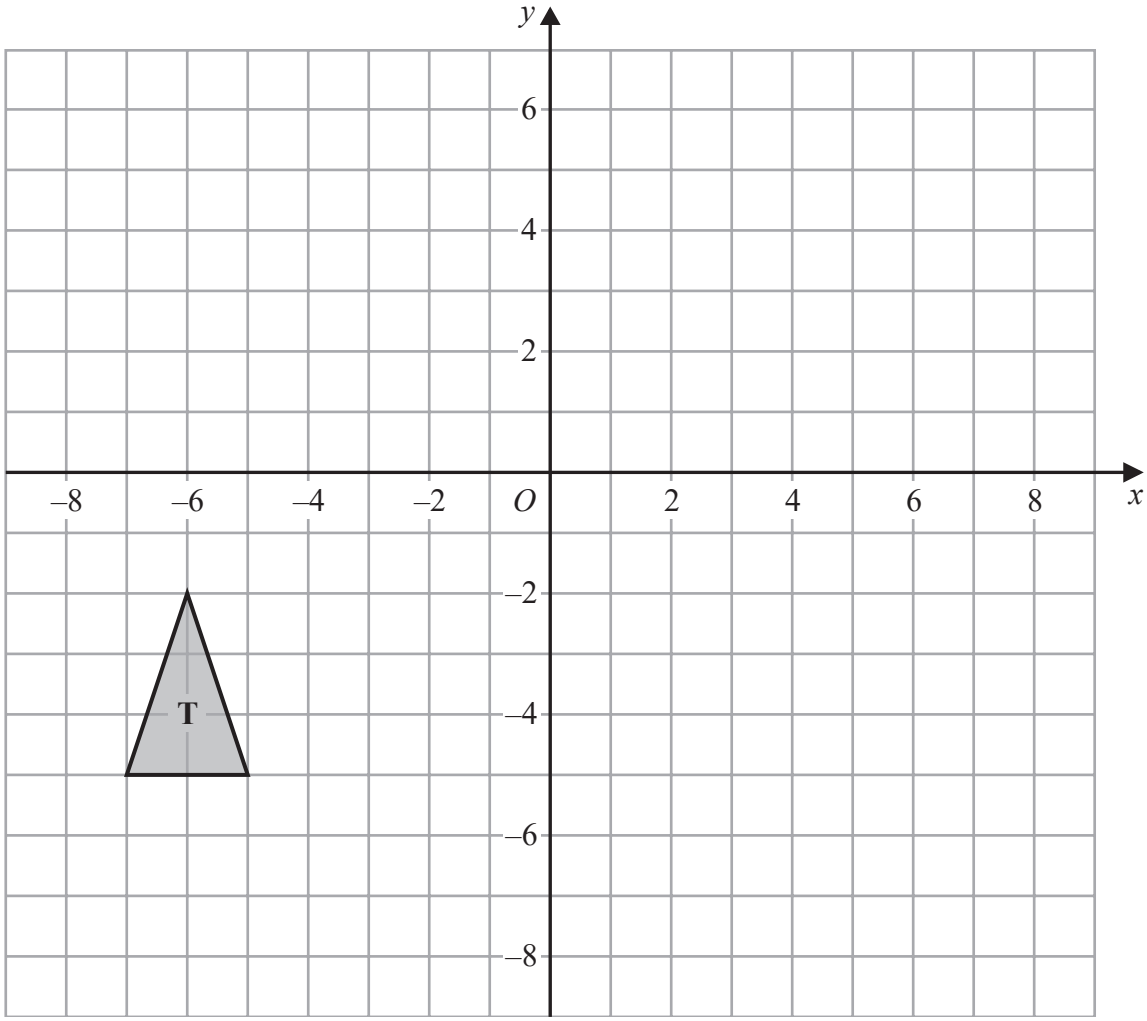
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.....

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(Total for Question 5 is 2 marks)

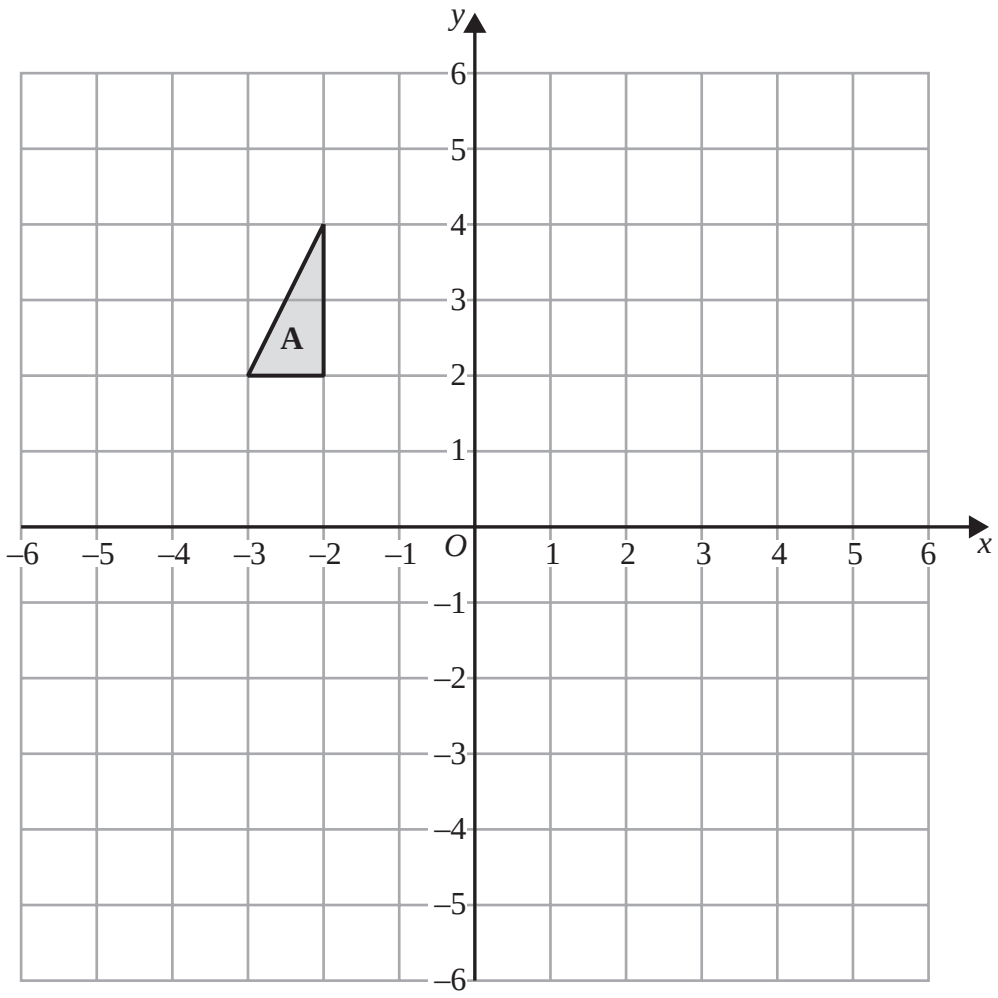
6



On the grid, enlarge triangle **T** by scale factor –2 with centre of enlargement (–2, –2)

(Total for Question 6 is 2 marks)

7



Triangle **A** is translated by the vector $\begin{pmatrix} 6 \\ -4 \end{pmatrix}$ to give triangle **B**.

Triangle **B** is rotated 90° clockwise about the point (1, 2) to give triangle **C**.

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

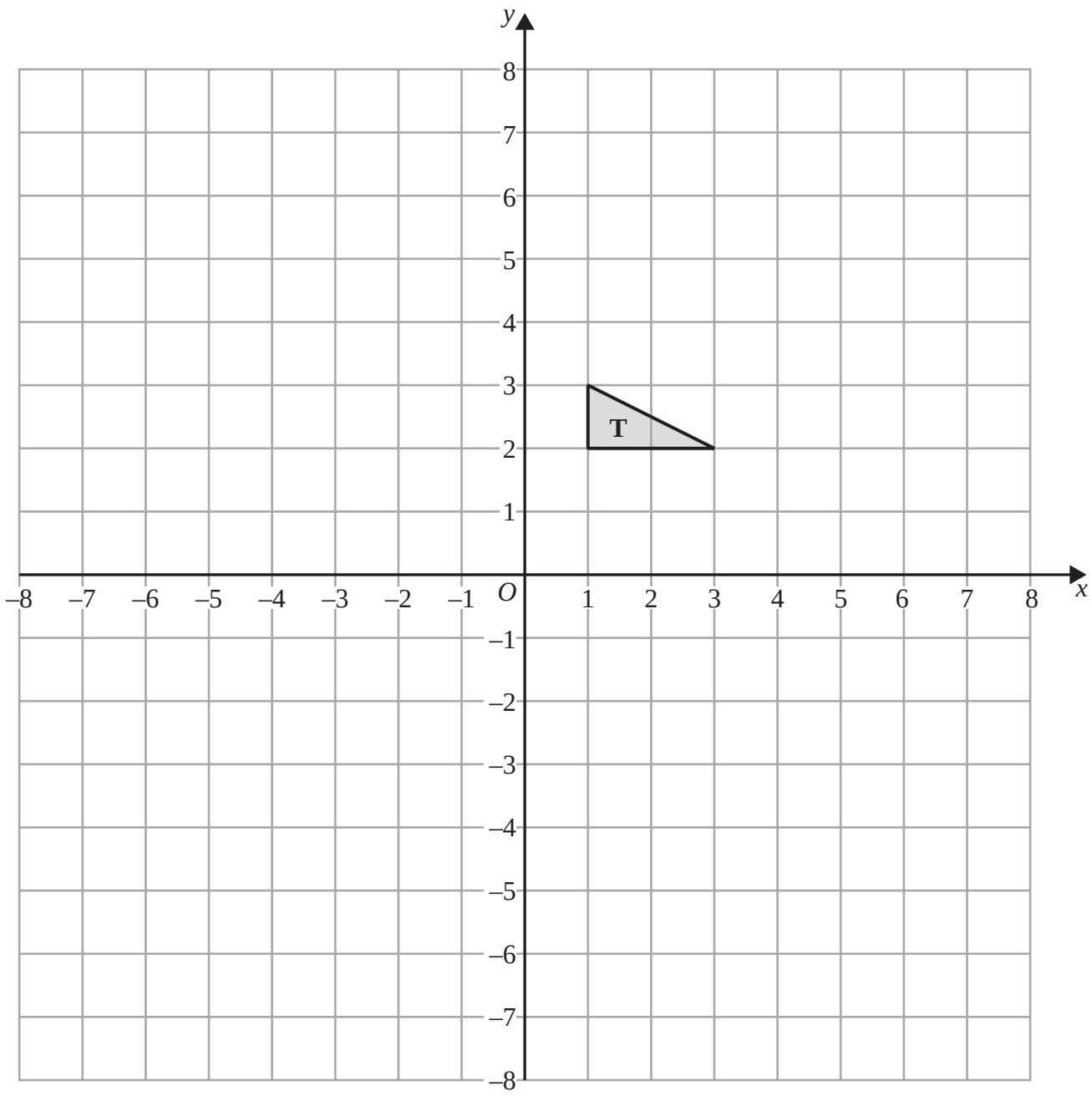
.....

.....

.....

(Total for Question 7 is 3 marks)

8 The diagram shows triangle **T** drawn on a grid.



Enlarge triangle **T** by scale factor –2 with centre of enlargement (0, 0)

(Total for Question 8 is 2 marks)