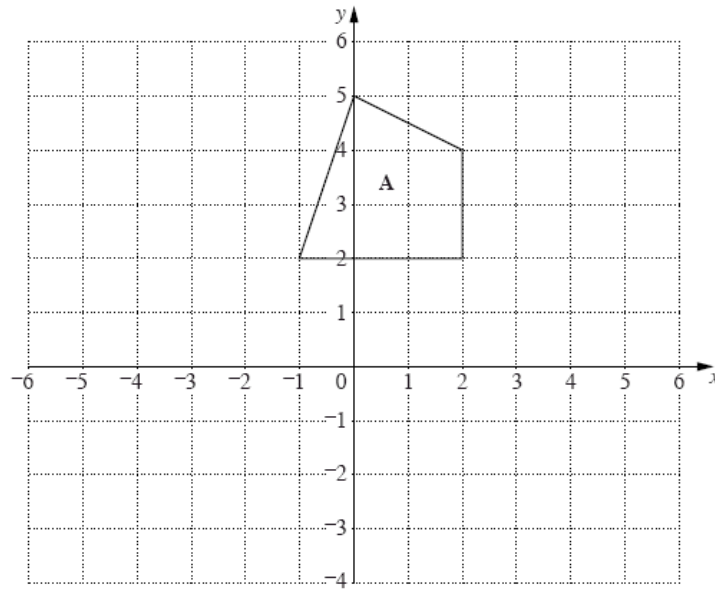


1.



- (a) Rotate shape **A** through 180° with centre $(2, 2)$.
Label the image **B**.

[2]

- (b) Translate shape **B** by the vector $\begin{pmatrix} -6 \\ 0 \end{pmatrix}$.
Label the image **C**.

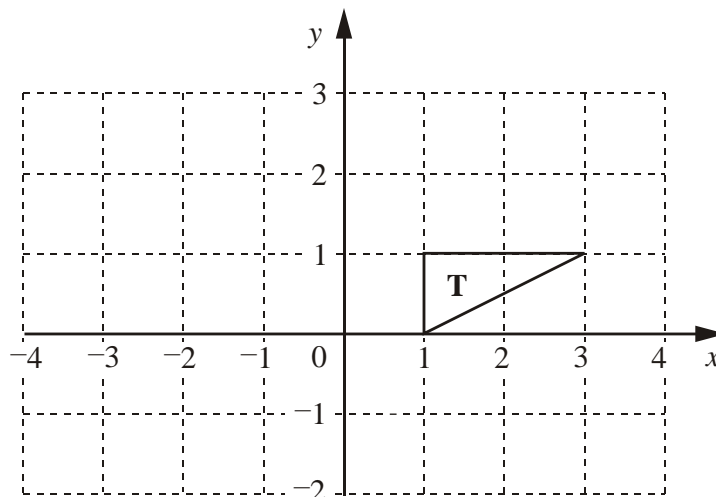
[2]

- (c) Describe fully the **single** transformation which maps shape **A** onto shape **C**.

.....

[2]

2.

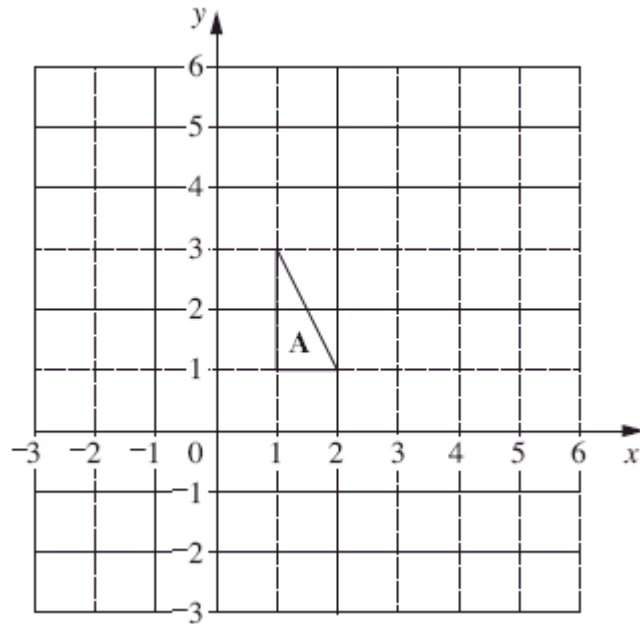


Find the **single** transformation that is equivalent to a reflection in the line $y = x$ followed by a reflection in the line $x = 1$.

You may use the diagram above to help you.

[3]

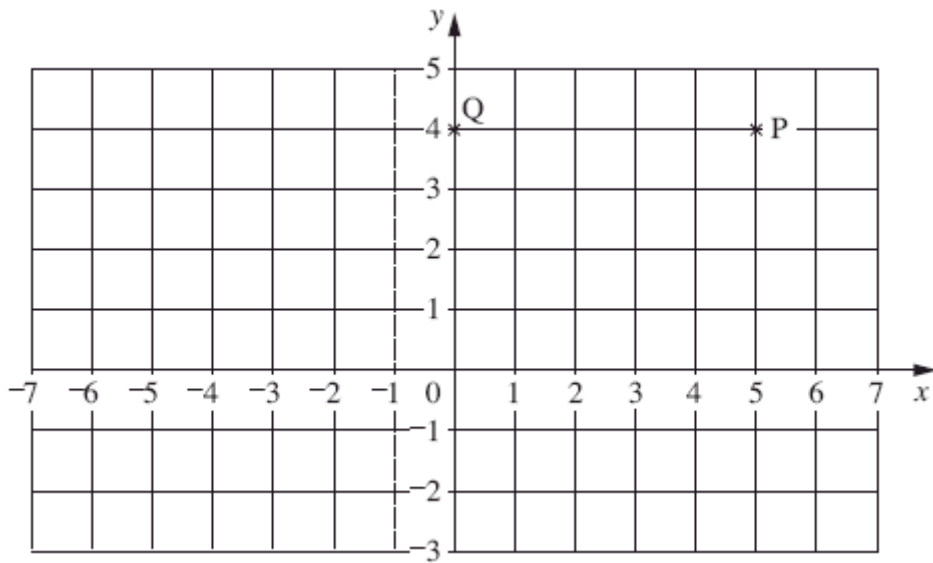
3. (a)



Reflect triangle **A** in the line $x = 3$.
Label the image **B**.

[2]

(b)



(i) Plot the point $(-2, 1)$ on this grid.
Label it **R**.

[1]

(ii) Mark point **S** on the grid so that **PQRS** is a parallelogram.

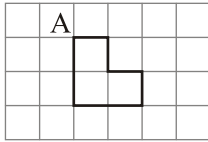
[1]

(iii) Write down the coordinates of **S**.

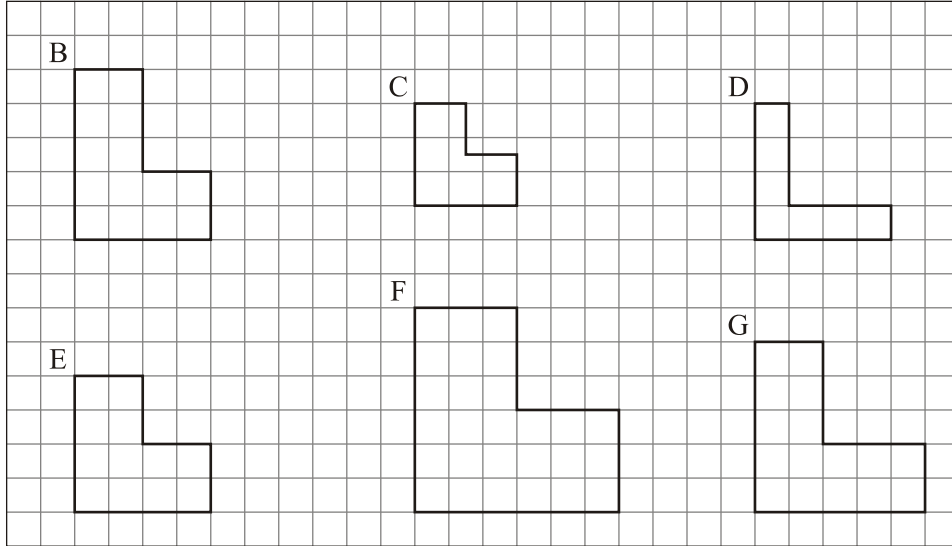
(.....,)

[1]

4.



Three of the shapes below are enlargements of shape A.



(a) Which shapes are **not** enlargements of shape A?

.....

[1]

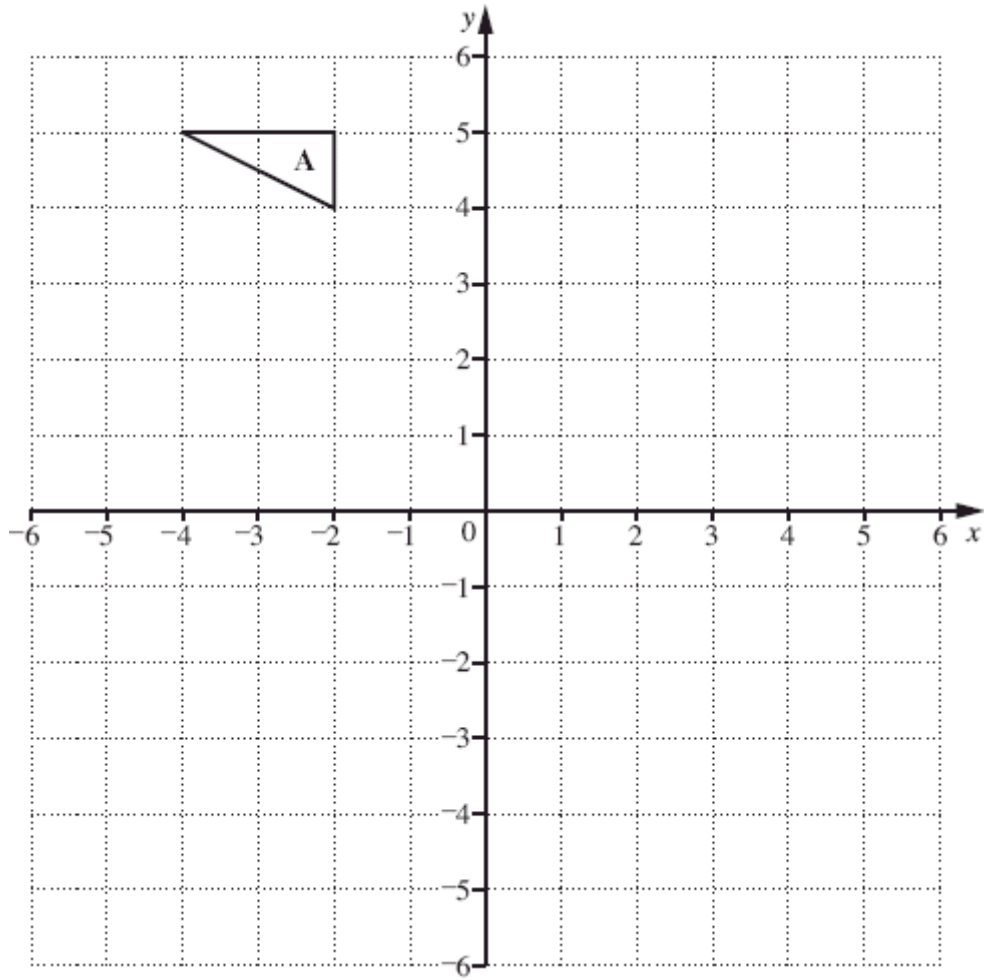
(b) Complete the following.

Shape is an enlargement of shape A with scale factor 2.

Shape is an enlargement of shape A with scale factor

[2]

5.



- (a) Rotate triangle **A** through 180° about $(0, 2)$.
Label the image **B**.

[2]

- (b) Translate triangle **B** by $\begin{pmatrix} 0 \\ 4 \end{pmatrix}$.
Label the image **C**.

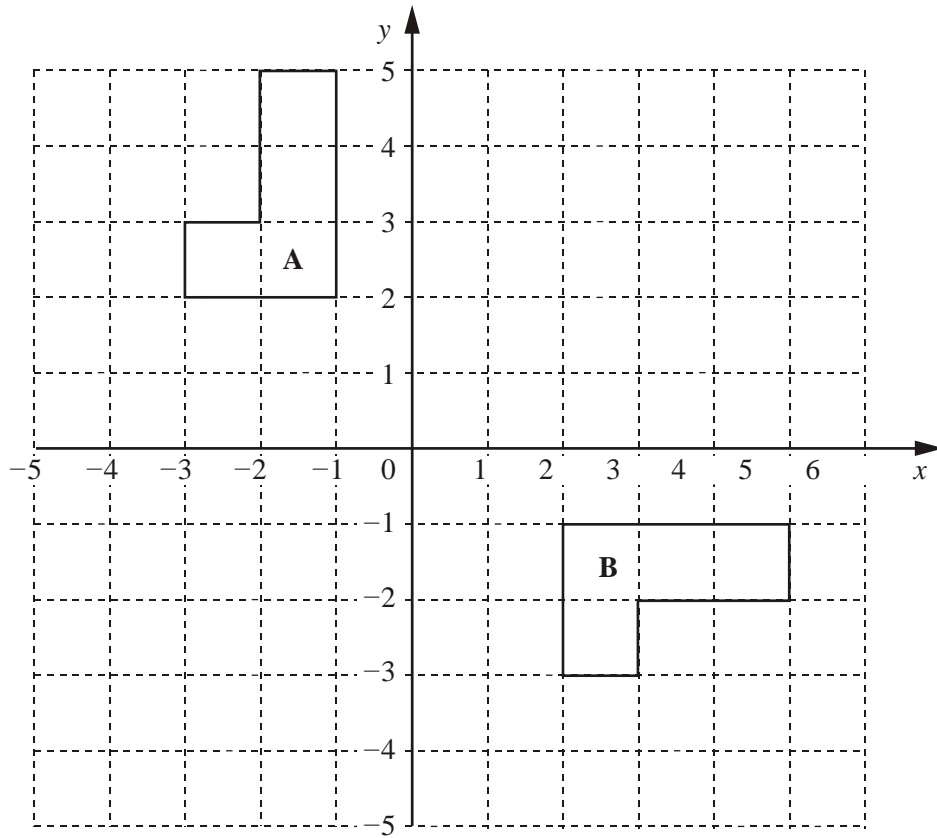
[1]

- (c) Describe fully the **single** transformation which maps triangle **A** onto triangle **C**.

.....
.....

[2]

6.



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

.....
.....
.....

[2]

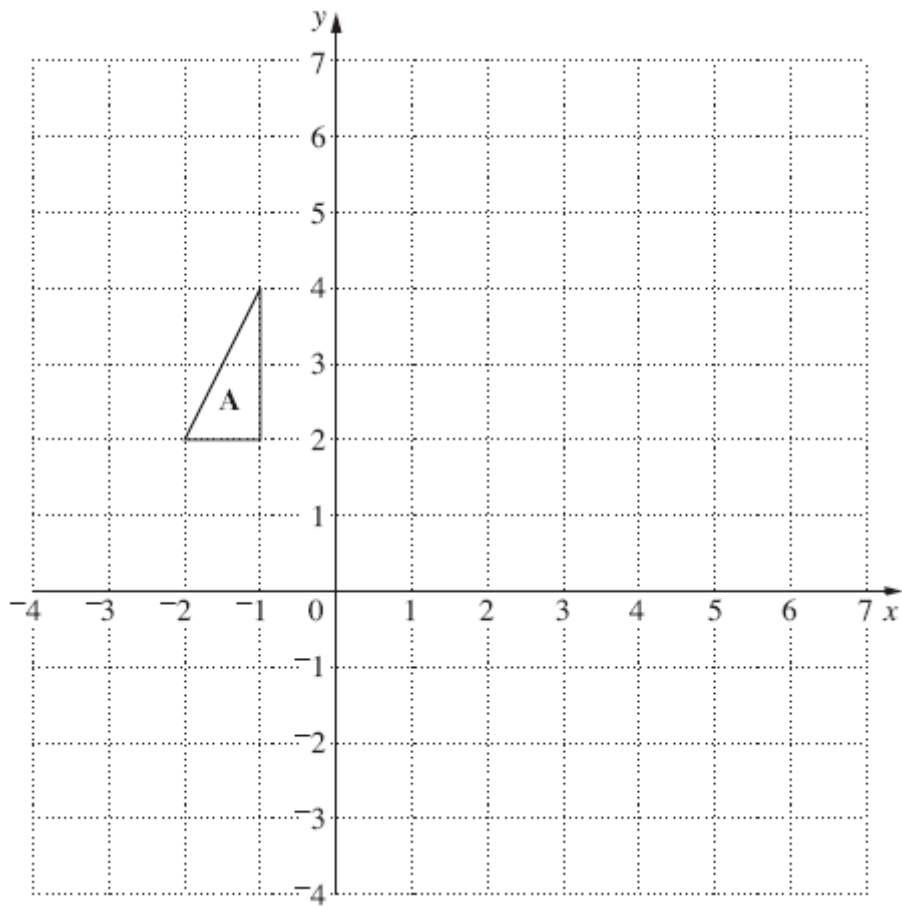
(b) Rotate shape **A** 90° clockwise about the origin.
Label the image **C**.

Translate the image **C** by $\begin{pmatrix} -6 \\ -5 \end{pmatrix}$

Label the final image **D**.

[3]

7.



- (a) Rotate triangle **A** through 180° about $(0, 2)$.
Label the image **B**.

[2]

- (b) Translate your image **B** by $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$.
Label the new image **C**.

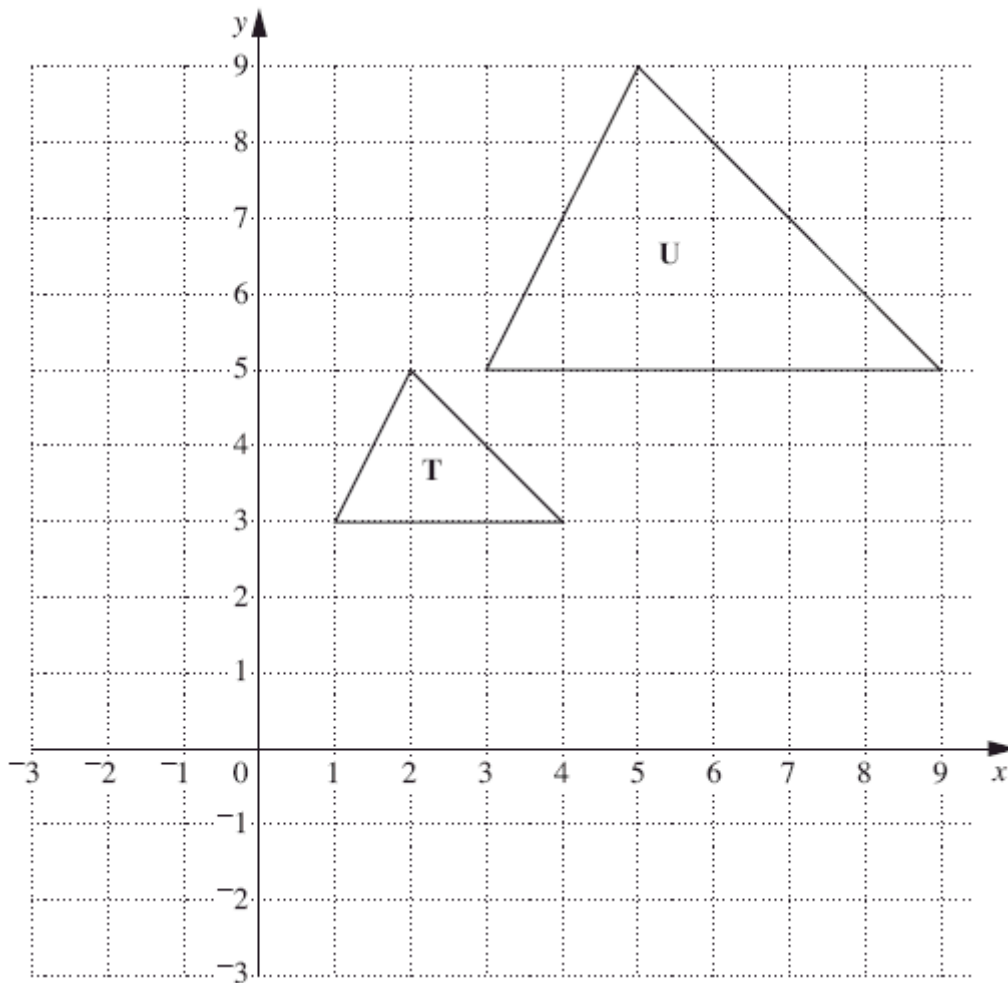
[2]

- (c) Describe fully the **single** transformation which maps triangle **A** onto triangle **C**.

.....
.....

[2]

8.



Triangle **T** has been enlarged to triangle **U**.

- (a) Write down the scale factor of this enlargement.

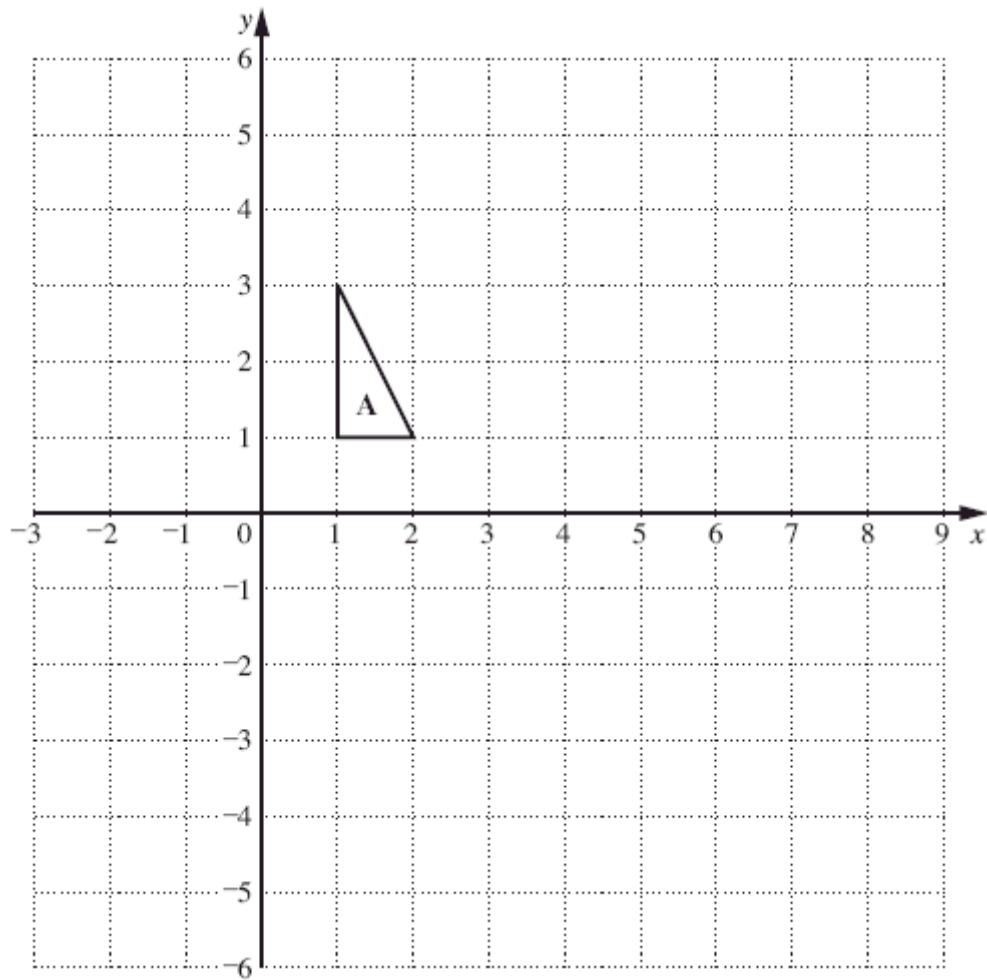
.....

[1]

- (b) Mark the centre of this enlargement on the diagram.
Label it **C**.

[1]

9.



- (a) Rotate triangle **A** through 180° about $(2, 1)$.
Label the image **B**.

[2]

- (b) Translate triangle **B** by $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$.
Label the image **C**.

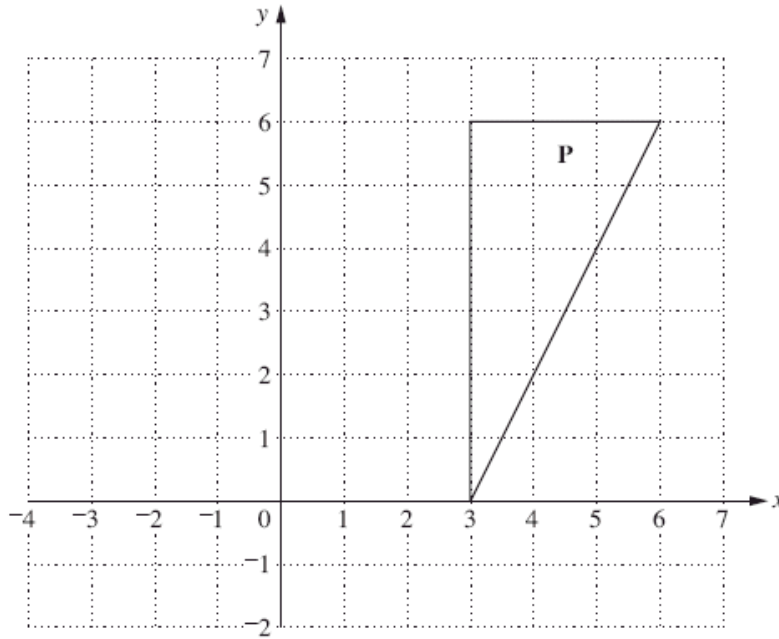
[2]

- (c) Describe fully the **single** transformation which maps triangle **A** onto triangle **C**.

.....
.....

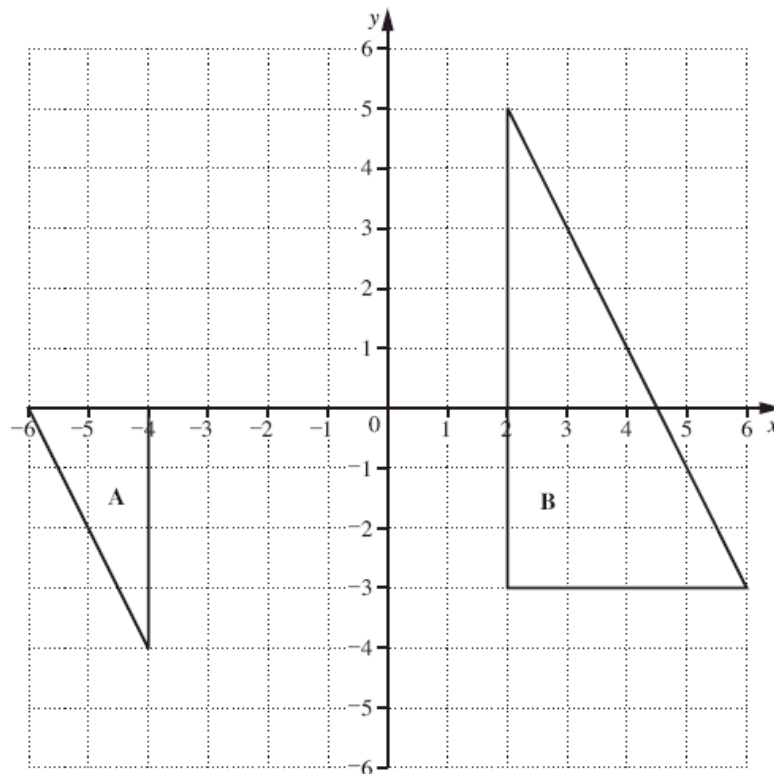
[2]

10. Enlarge triangle **P** with scale factor $\frac{1}{3}$ and centre of enlargement $(-3, 3)$.
Label the image **Q**.



[3]

- 11.



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

.....

.....

.....

[3]