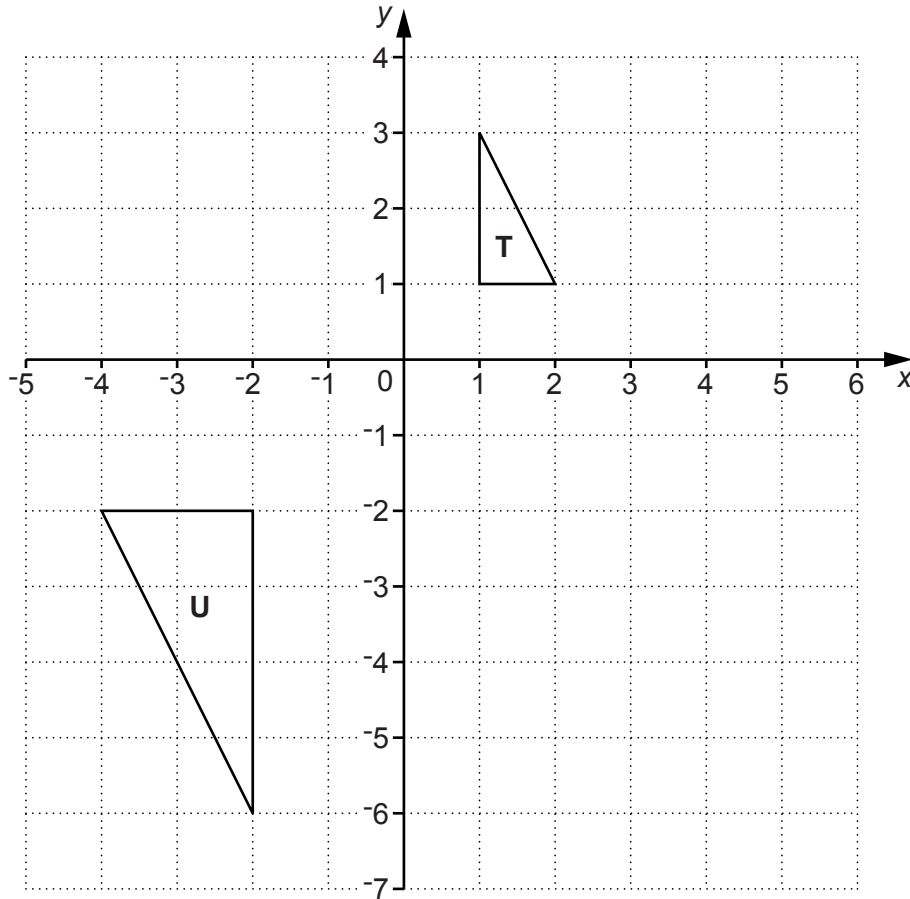


1



- (a) Rotate triangle **T**  $90^\circ$  clockwise about the origin.  
Label your image **A**. [3]
- (b) Reflect triangle **T** in the line  $y = -1$ .  
Label your image **B**. [2]
- (c) Describe fully the enlargement that maps triangle **T** onto triangle **U**.

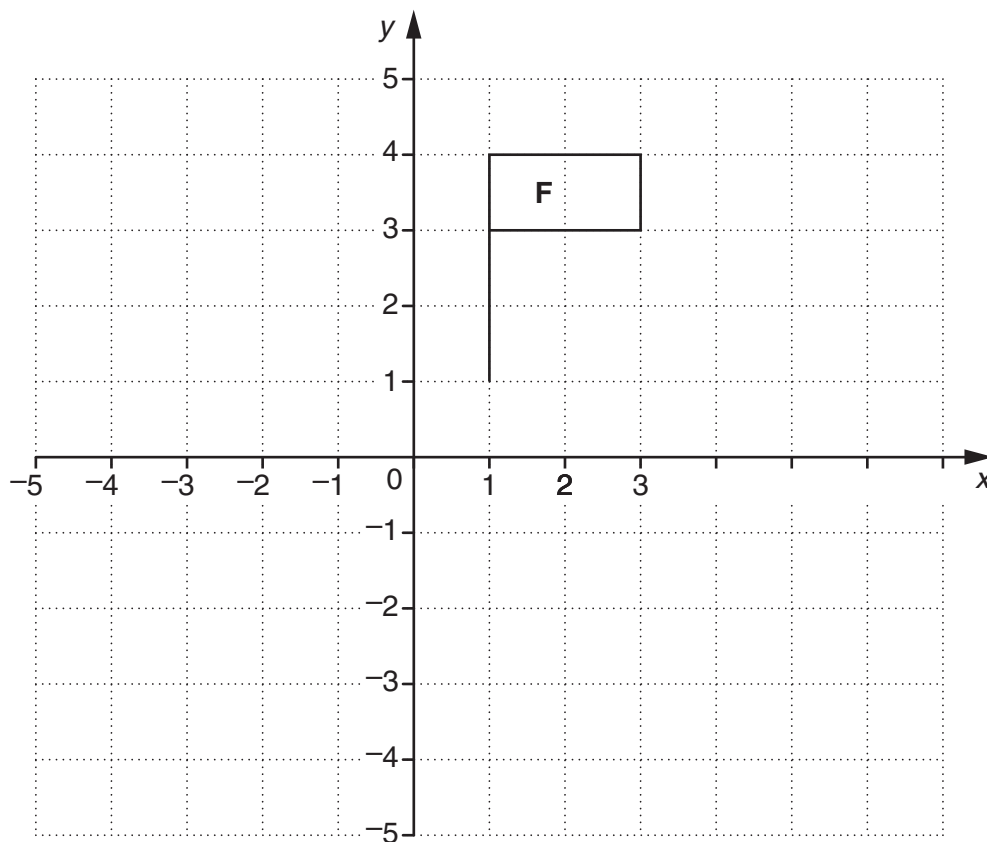
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[2]

2



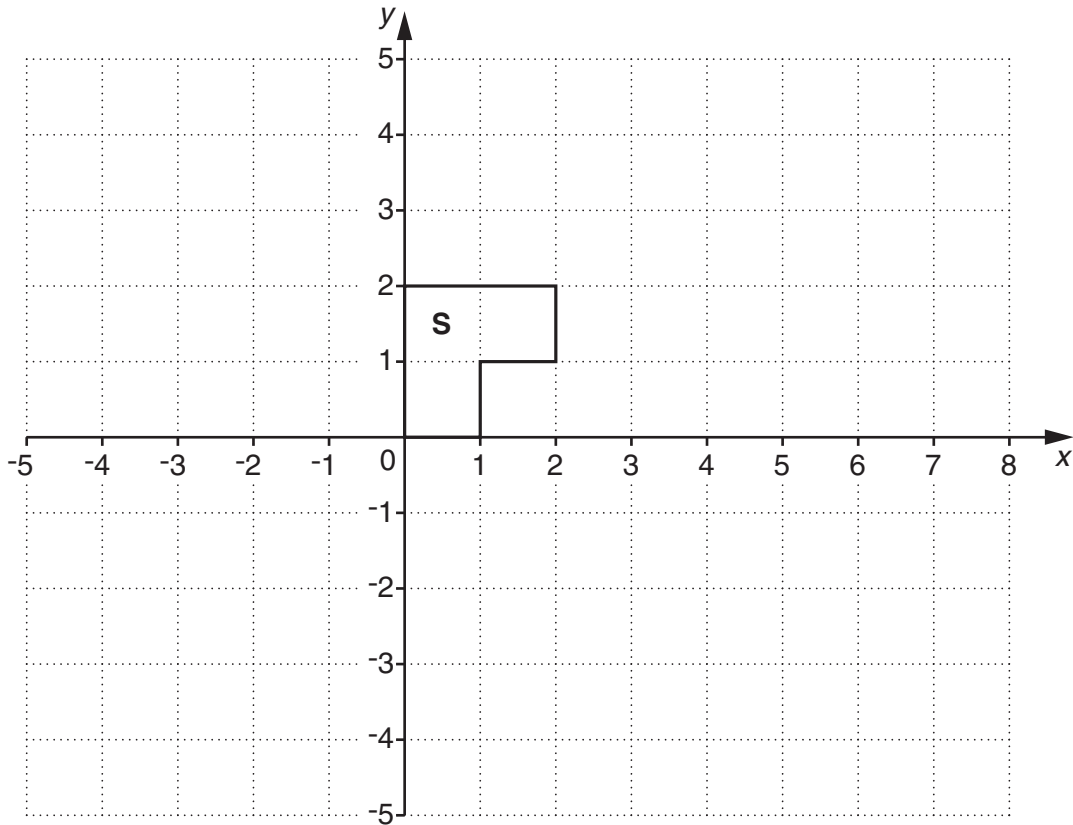
- (a) Rotate shape **F**  $90^\circ$  anticlockwise about the point  $(1, 1)$ .  
Label the image **G**.

[3]

- (b) Translate shape **F** using the vector  $\begin{pmatrix} 1 \\ -3 \end{pmatrix}$ .  
Label the image **H**.

[2]

3 Shape **S** is shown on the grid.



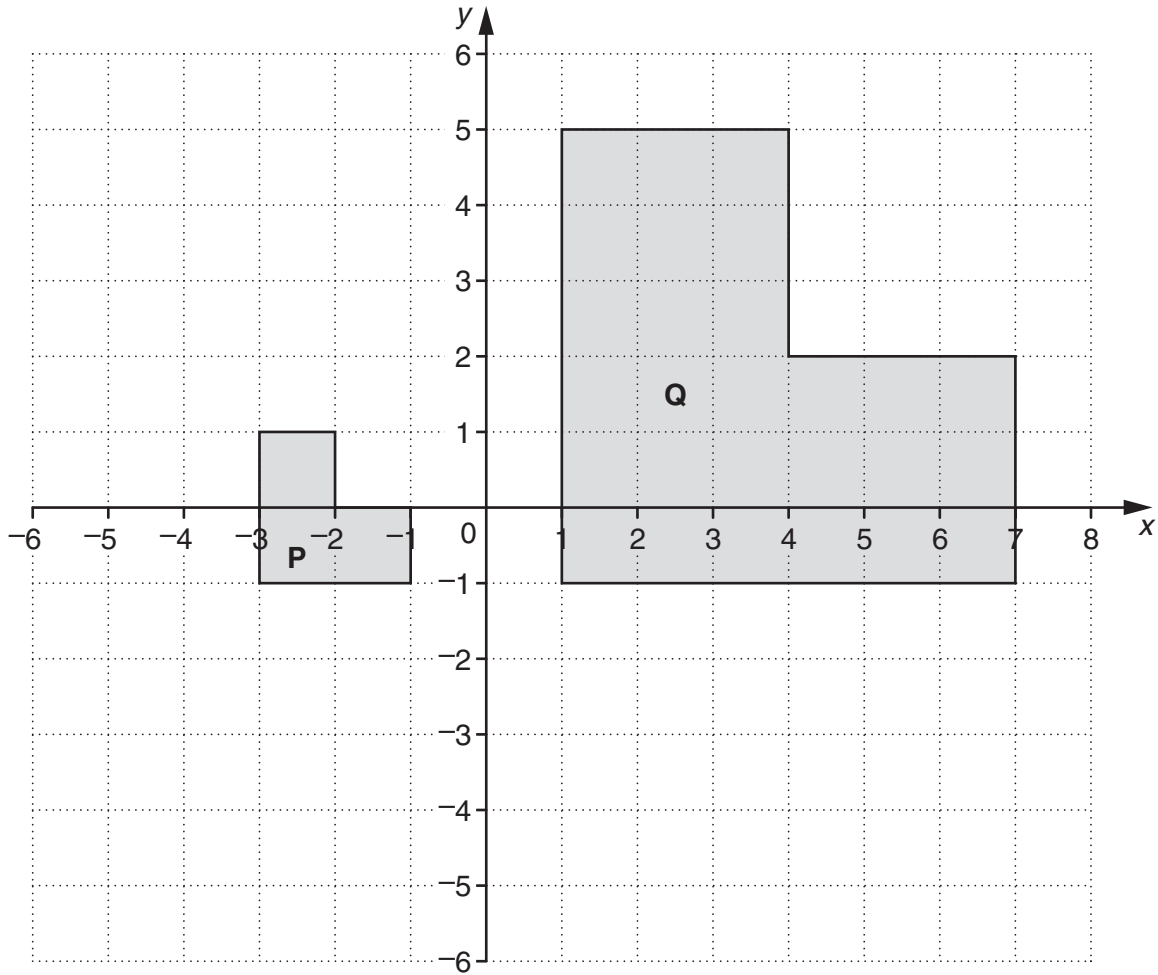
(a) Rotate shape **S** through  $90^\circ$  clockwise about  $(2, 0)$ .  
Label your image **R**.

[3]

(b) Enlarge shape **S** with scale factor  $-2$  and centre  $(0, 0)$ .  
Label your image **E**.

[2]

4



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

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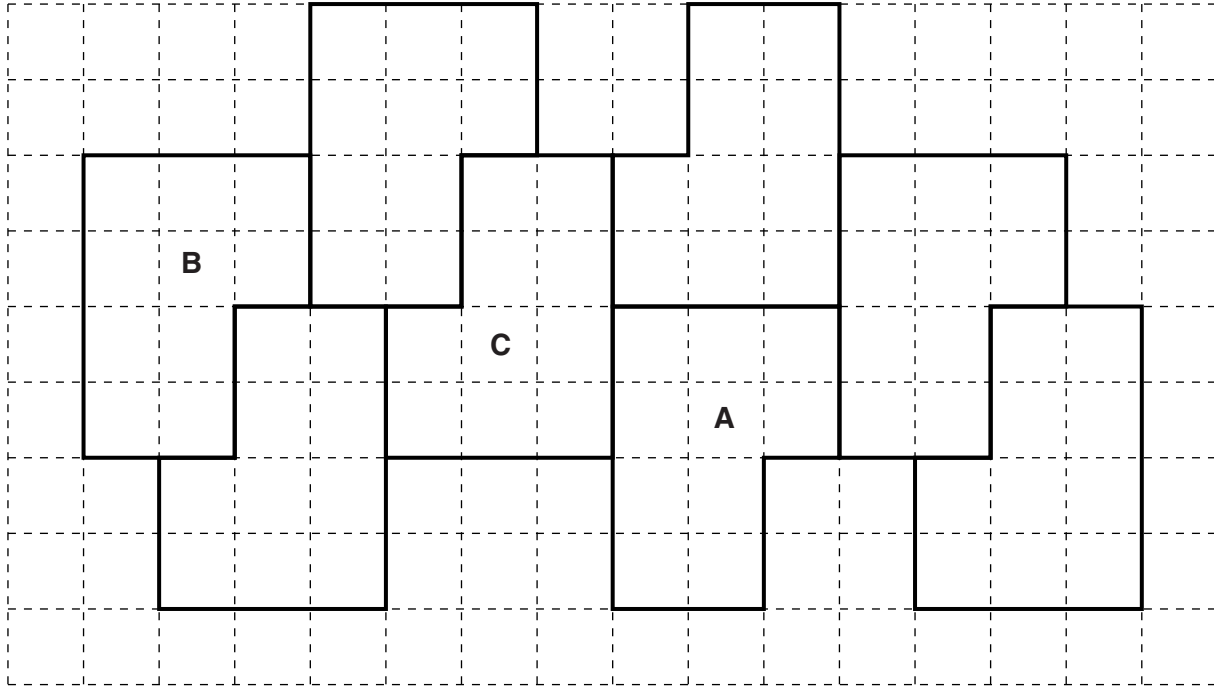
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[3]

(b) Rotate shape **P**  $180^\circ$  about the point  $(-2, -2)$ .  
Label the image **R**.

[2]

5 Part of a wallpaper design is shown below.



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

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[3]

(b) Shape **C** is a rotation of shape **B**.

(i) Through what angle has the shape been rotated?

(b)(i) \_\_\_\_\_ ° [1]

(ii) Mark the centre of rotation with a cross (X). [1]

(c) Describe a single transformation that would **decrease** the **area** of shape **A**.

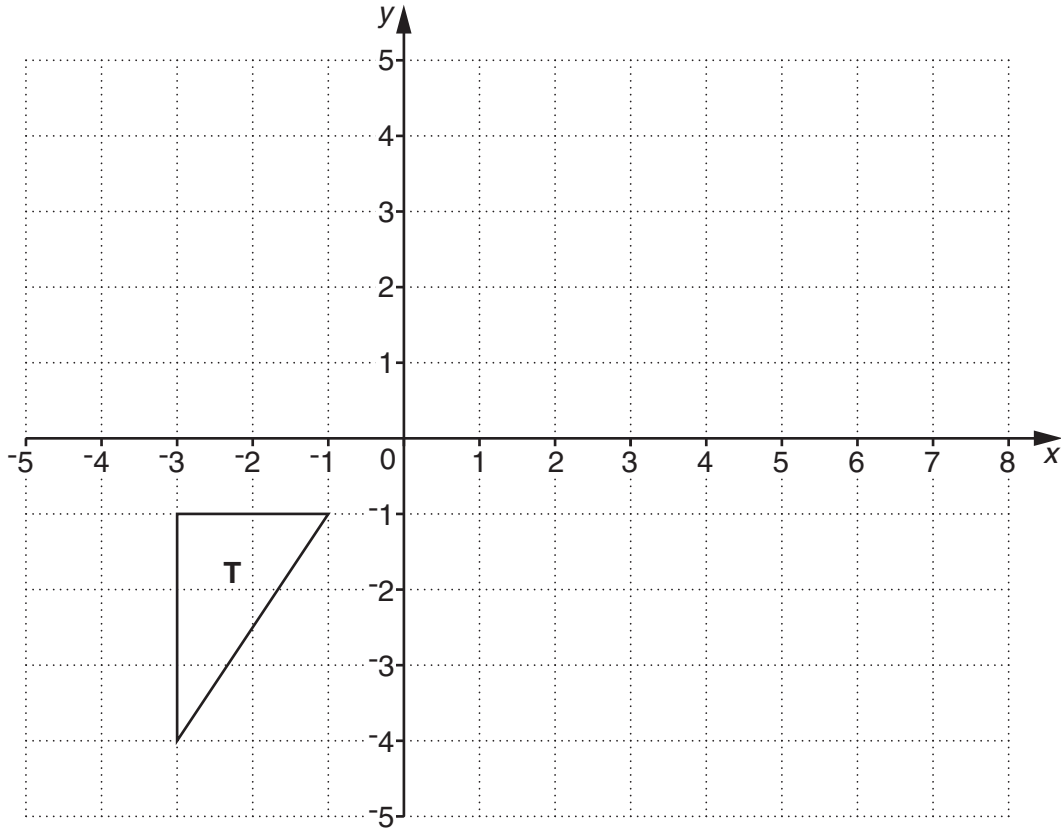
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[2]

6 The grid shows triangle **T**.



- (a) Reflect triangle **T** in the line  $y = -1$ .  
Label the image **A**.

[2]

- (b) Rotate triangle **T**  $180^\circ$  about the point  $(0, 0)$ .  
Label the image **B**.

[2]

- (c) Triangle **T** is transformed by four translations given by the following vectors.

$$\begin{pmatrix} 15 \\ -6 \end{pmatrix} \text{ then } \begin{pmatrix} 22 \\ 9 \end{pmatrix} \text{ then } \begin{pmatrix} -15 \\ 6 \end{pmatrix} \text{ then } \begin{pmatrix} -17 \\ -9 \end{pmatrix}$$

Draw the image of triangle **T** after these four translations.  
Label the image **C**.

[3]