

Transformations

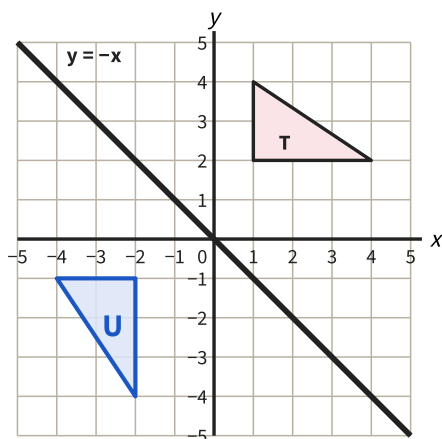
ANSWERS

Ruler and tracing paper | 30 minutes | Total marks: 27

Name Class

1

(a)

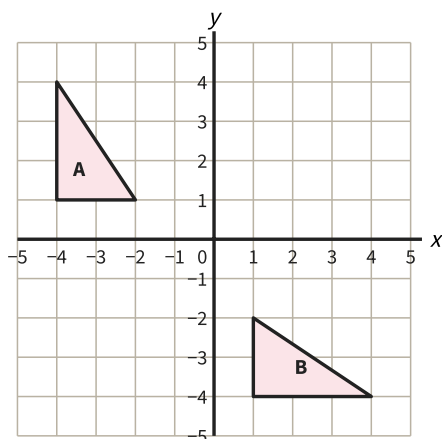


The line $y = -x$ is drawn on the grid.
Reflect triangle T in the line $y = -x$
Label the new triangle U.

[2 marks]

2 corners correct (1) All correct (1)

(b)



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

Reflection (1)

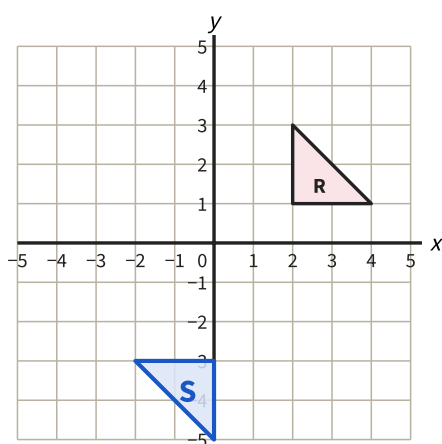
in the line $y = x$ (1)

[2 marks]

2

You may use tracing paper.

(a)

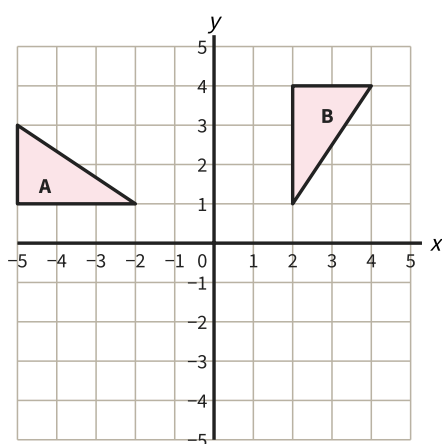
Rotate triangle R 180° about the point $(1, -1)$

Label the new triangle S.

[2 marks]

Half turn (1) Correct position (1)

(b)



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

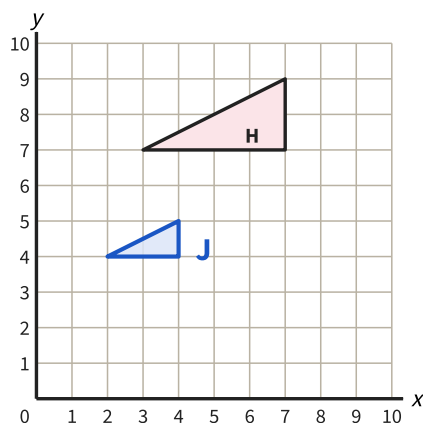
Rotation (1)

 90° clockwise (1)about the point $(0, -1)$ (1)

[3 marks]

3

(a)



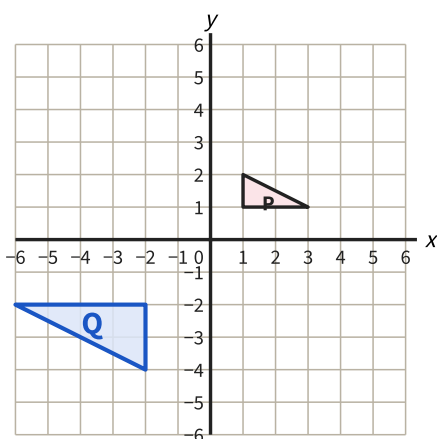
Enlarge triangle H by scale factor $\frac{1}{2}$, centre (1, 1)

Label the new triangle J.

[2 marks]

Sides half as long (1) Correct position (1)

(b)

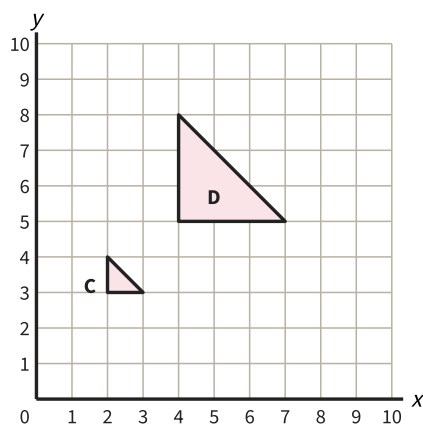


Enlarge triangle P by scale factor -2, centre (0, 0)
Label the new triangle Q.

[3 marks]

Sides twice as long (1) On the opposite side of the centre (1)
Correct position (1)

(c)



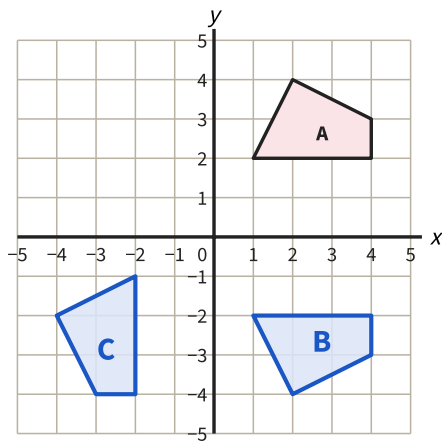
Describe fully the single transformation that maps triangle C onto triangle D.

Enlargement (1)

scale factor 3 (1)

centre (1, 2) (1)

[3 marks]



You may use tracing paper.

- (a) Reflect shape A in the x -axis.
Label the new shape B.

Reflection in a horizontal line (1) Correct position (1)

[2 marks]

- (b) Rotate shape B 90° clockwise about $(0, 0)$
Label the new shape C.

Quarter turn clockwise (1) Correct position (1)

[2 marks]

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

Reflection (1)

in the line $y = -x$ (1)

[2 marks]

5

- (a) A shape is reflected in the line $x = 2$
Which two of these points are invariant?

(2, 5) (5, 2) (2, -1) (-2, 2)

Answer (2, 5) and (2, -1) (1)

[2 marks]

- (b) The point (3, -2) is rotated 90° anticlockwise about (0, 0)
Write down the coordinates of the new point.

Answer (2, 3) (1)

[1 mark]

- (c) A shape is translated by the vector $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$ and then by the vector $\begin{pmatrix} -5 \\ 4 \end{pmatrix}$
Write down the single vector that has the same effect.

Answer $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$ (1)

[1 mark]

Question	Topic	RAG
1	I can reflect in $y = x$ and $y = -x$ and describe a reflection	
2	I can rotate about any point and describe a rotation	
3	I can enlarge by a fractional or negative scale factor and describe an enlargement	
4	I can carry out two transformations and describe them as one	
5	I can find invariant points and combine transformations of a point	