

GCSE Maths: Describing and identifying single transformations (Foundation): worksheet

GCSE Maths - Transformations and Similarity - Foundation - Lesson 21.5

Name: _____

Date: _____

Score: _____

15 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch21-transformations-congruence-similarity/foundation/describing-and-identifying-single-transformations/

Exercise 21E Describing single transformations Non-calculator

- 1 Shape B is the image of shape A. For each description, write down the single transformation that could have been used (name it only).

(a) B is the same size as A and is a mirror image of A.

Answer: _____

(b) B is bigger than A but has the same shape.

Answer: _____

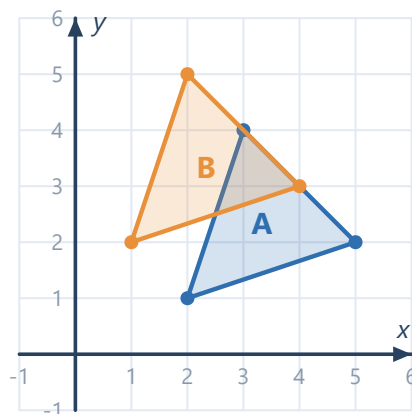
(c) B is the same size as A, faces the same way, and every side of B is parallel to the matching side of A.

Answer: _____

(d) B is the same size as A, not flipped, but turned round.

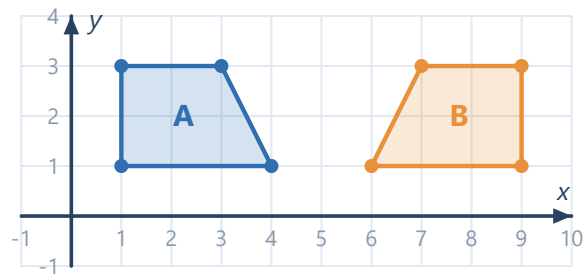
Answer: _____

- 2 Describe fully the single transformation that maps A onto B.



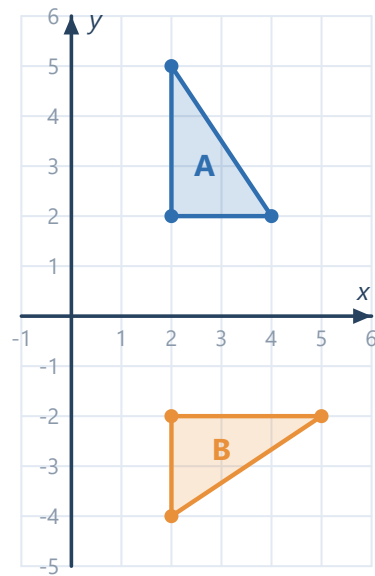
Answer: _____

- 3 Describe fully the single transformation that maps shape A onto shape B.



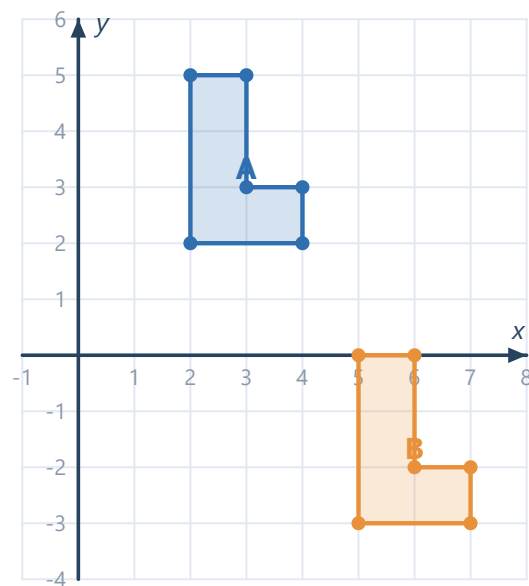
Answer:

- 4 Describe fully the single transformation that maps shape A onto shape B.



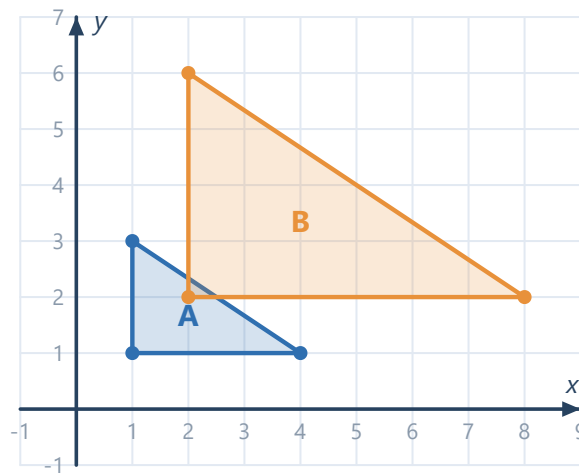
Answer:

- 5 Describe fully the single transformation that maps shape A onto shape B.



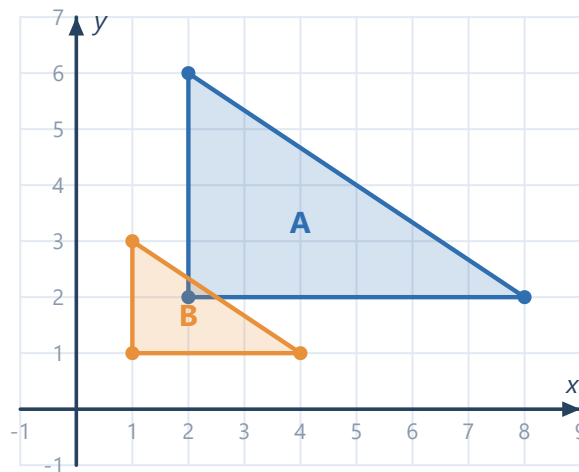
Answer:

6 Describe fully the single transformation that maps shape A onto shape B.



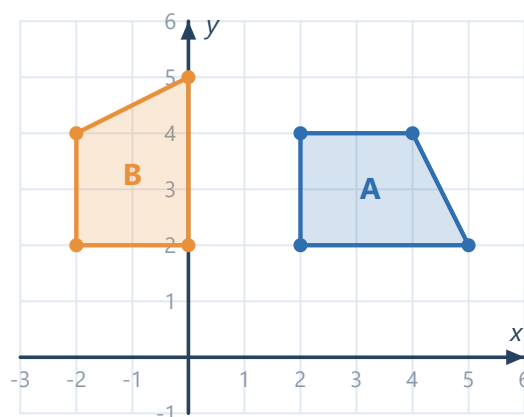
Answer:

7 Describe fully the single transformation that maps shape A onto shape B.



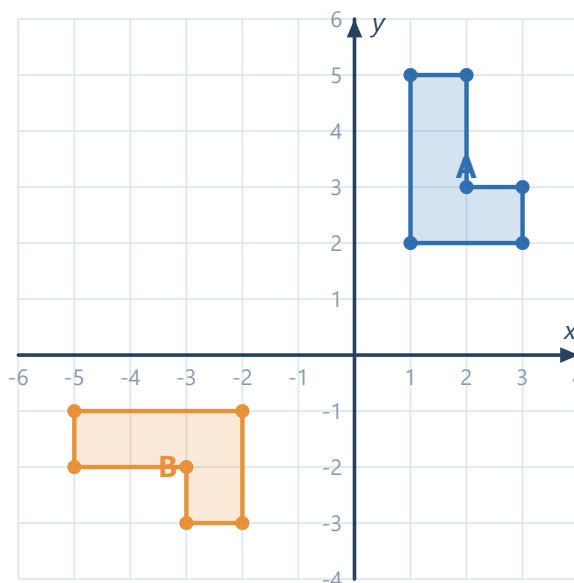
Answer:

8 Describe fully the single transformation that maps shape A onto shape B.



Answer:

9 Describe fully the single transformation that maps shape A onto shape B.



Answer:

10 Say whether the image is **congruent** to the object, or only **similar**.

(a) a reflection

Answer:

(b) a rotation

Answer:

(c) a translation

Answer:

(d) an enlargement with scale factor 3

Answer:

11 Write down the invariant point(s) of each transformation.

(a) reflection in the line $x = 2$

Answer:

(b) rotation of 90° clockwise about $(1, 1)$

Answer:

(c) translation by $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$

Answer:

(d) enlargement with scale factor 3 and centre $(0, 0)$

Answer:

12 Shape A is mapped to shape B by a reflection in the line $x = 6$. Which single transformation maps B back onto A? Describe it fully.

Answer:

13 Shape A is mapped to B by an enlargement with scale factor 3 and centre $(2, 1)$. Describe fully the transformation that maps B back onto A.

Answer:

- 14** Ali says that the transformation that maps A onto B is a reflection in the y -axis. A has a vertex at (3, 2) and B has a vertex at (7, 2) matching it. Show that Ali is wrong, and say what the mirror line must be if it is a reflection.

Answer:

- 15 Challenge.** A triangle A with vertices (1, 1), (3, 1) and (1, 4) is mapped to B with vertices (-1, 1), (-3, 1) and (-1, 4). Two students describe the transformation differently. Hannah says: "Reflection in the y -axis." Ravi says: "Rotation of 180° about the origin." Who is right? Explain.

Answer:
