Your notes

KS3 Maths: revision notes

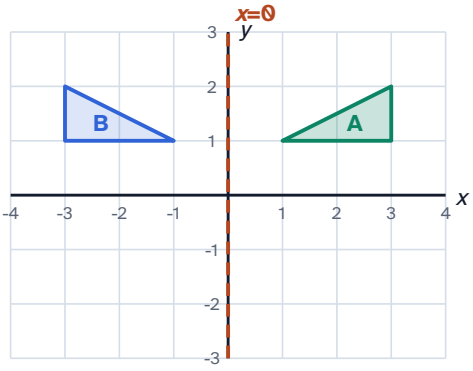
Transformations

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Translation and reflection

- A **translation** slides a shape without turning it. Describe it by how far it moves right or left and up or down (a **vector**): 3 right and 2 down.
- A **reflection** flips a shape in a **mirror line**, such as the x-axis, the y-axis, x = 2 or y = x. Each point ends up the same distance from the line, on the other side.
- Reflecting (2, 5) in the x-axis gives (2, –5); reflecting it in the y-axis gives (–2, 5).



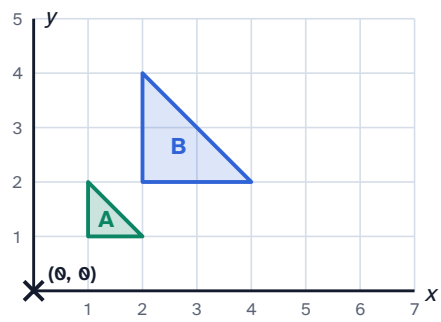
Rotation

- A **rotation** turns a shape about a **centre of rotation**. Describe the angle, the direction (clockwise or anticlockwise) and the centre.
- A **rotation** of 180° about the origin changes (4, 2) into (–4, –2).
- Use tracing paper to help you rotate shapes.

Enlargement

- An **enlargement** changes the size of a shape by a **scale factor**, from a centre of **enlargement**. A scale factor of 2 doubles every length; a scale factor of ½ halves them.

- The angles stay the same, so the **image** is similar to the original. If the **scale factor** is 2, the area is multiplied by 4.
- **Translations**, **reflections** and **rotations** give congruent images (the same size); enlargements give similar images.



Key terms

Transformation	A change to the position, direction or size of a shape.
Translation	Sliding a shape without turning or resizing it.
Reflection	Flipping a shape in a mirror line.
Rotation	Turning a shape about a fixed point.
Enlargement	Changing the size of a shape by a scale factor.
Scale factor	The number that all the lengths are multiplied by in an enlargement.
Centre of rotation	The fixed point a shape turns around.
Mirror line	The line a shape is reflected in.
Image	The shape after a transformation.
Vector	A way of describing a movement: how far across and how far up or down.

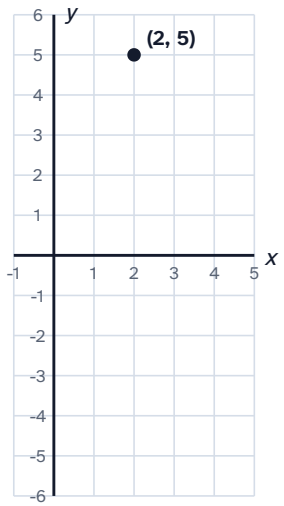
Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

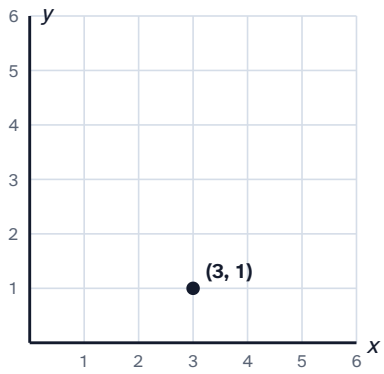
1. Which transformation slides a shape without turning it?
2. What do you need to describe a rotation?
3. A shape is enlarged by scale factor 3. One side was 4 cm. How long is it now?
4. What happens to the angles in a shape when it is enlarged?
5. Which transformations always give a congruent image?

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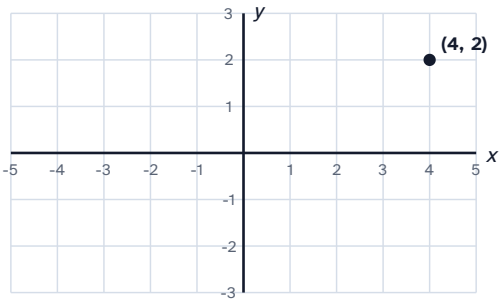
6. The point (2, 5) is reflected in the x-axis. Where does it go?



7. The point (3, 1) is translated 2 right and 4 up. Where does it go?



8. A point (4, 2) is rotated 180° about the origin. Where does it go?



Answers

1. Translation
2. The angle, the direction and the centre
3. 12 cm
4. They stay the same
5. Translation, reflection and rotation
6. (2, –5)

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7. (5, 5)
8. (–4, –2)

What to do next

Practise 12 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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