

Coordinates and transformations

Pearson Edexcel GCSE Mathematics 1MA1 • L029

Foundation and Higher • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose

Transform points and shapes by translation, reflection and rotation, and describe each transformation completely.

Vocabulary

Object: starting shape. Image: transformed shape. Translation vector (a,b): move a horizontally, b vertically. Mirror line: reflection axis. Centre of rotation: fixed turning point.

Why the method works

Translation adds the same vector to every vertex. Reflection places each image the same perpendicular distance on the other side of the mirror. Rotation preserves distances from its centre and turns all points through the same directed angle. These three transformations preserve lengths and angles.

Method and checking

Plot vertices accurately; transform each one; join in the same order. Describe translation by a vector, reflection by a line equation, rotation by angle, direction and centre. Check lengths and orientation.

Common errors and next attempt

If coordinates swap accidentally, read x then y. If reflection across $x=1$ is treated as $x=0$, count perpendicular distances. For rotation, use tracing paper and label the centre before turning.