

Transformations – translation, reflection, rotation and enlargement

MODULE 6 · 2D AND 3D SHAPE, ANGLES, SYMMETRY SHAPE & SPACE

Three ways to move a shape without changing its size or shape: **translation** (slide), **reflection** (flip across a line), **rotation** (turn around a point).

→ **Translation**: every point shifts by the same amount, e.g. 3 squares right and 2 down.

→ **Reflection**: every point flips to the **opposite side** of a mirror line.

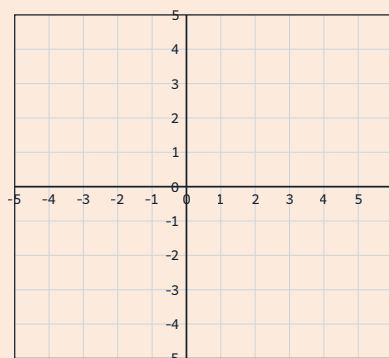
→ **Rotation**: every point turns through the same angle around a fixed centre.

HOW TO ANSWER TODAY

- **Transformations.** Slide without turning → translation. Flip (mirror) → reflection. Turn → rotation.
Triangle slid left → translation · Letter flipped → reflection

TRY IT ON THE LINE

For each shape on the grid, apply the named transformation and plot the image. Name what's the same and what's changed.



1. Plot triangle ABC: A(1,1), B(3,1), C(2,3). **Translate** 3 right, 1 down → A'(__,__), B'(__,__), C'(__,__).
2. Plot square WXYZ: W(-4,1), X(-2,1), Y(-2,3), Z(-4,3). **Reflect** in the y-axis → image W'(__,__), X'(__,__), Y'(__,__), Z'(__,__).
3. Plot point P(2,-2). **Rotate** P 180° about the origin → P'(__,__).

PRACTICE

- 1 Tadhg is painting a butterfly stencil on the side of the new raised bed in the school garden. He notices the butterfly flips across the vertical line through its centre, so the left wing matches the right wing exactly. Is this transformation a translation, a reflection or a rotation?

Name the transformation described: the shape flips across the vertical line through its centre. (Choose translation, reflection or rotation.)

- 2 Mr Ó Briain is marking out the soccer pitch on the school field for 5th class. He says the markings on the far half of the pitch are the same as the near half, but the shape flips across the horizontal line of symmetry running through the centre circle. Is this a translation, a reflection or a rotation?

Name the transformation described: the shape flips across the horizontal line of symmetry. (Choose translation, reflection or rotation.)