Operation of rotation through the angles 90° and 180°

Understanding: Operation of Rotation through the Angles 90° and 180°

- Rotation means turning a shape around a fixed point called the center of rotation.
- The amount of turning is measured in degrees.
- Common rotation angles are 90° (quarter turn) and 180° (half turn).
- Rotation can be clockwise (CW) or anticlockwise (ACW).

Important Points

- A 90° rotation turns the figure one-quarter of a full turn
- A 180° rotation turns the figure halfway around
- In a 90° rotation, the position of the figure changes noticeably
- In a 180° rotation, the figure appears upside down or reversed

Examples with Solutions

Example

A square is rotated 90° clockwise around its centre. Will it look the same?

Yes, a square matches its original shape after a 90° rotation

It looks the same \rightarrow symmetrical

Example

What happens when the letter "Z" is rotated 180°?

It appears the same when turned upside down

"Z" has 180° rotational symmetry

Example

Rotate the letter "L" by 90° clockwise The letter "L" turns to face downward direction and looks different "L" does not look the same \rightarrow no symmetry at 90°



Example

Does a rectangle look the same after 180° rotation?

Yes, the shape matches after a half turn

Rectangle has 180° rotational symmetry

Example

If an equilateral triangle is rotated 90°, will it match its original shape?

No, it matches only at 120°, 240°, and 360°

It will not match at 90°

Summary Points

- Rotation means turning a figure around a fixed point.
- 90° is a quarter turn, 180° is a half turn.
- Some shapes match their original shape after rotation.
- Square and rectangle look the same at both 90° and 180° (square), or only at 180° (rectangle).
- Not all figures have symmetry at 90° or 180°.