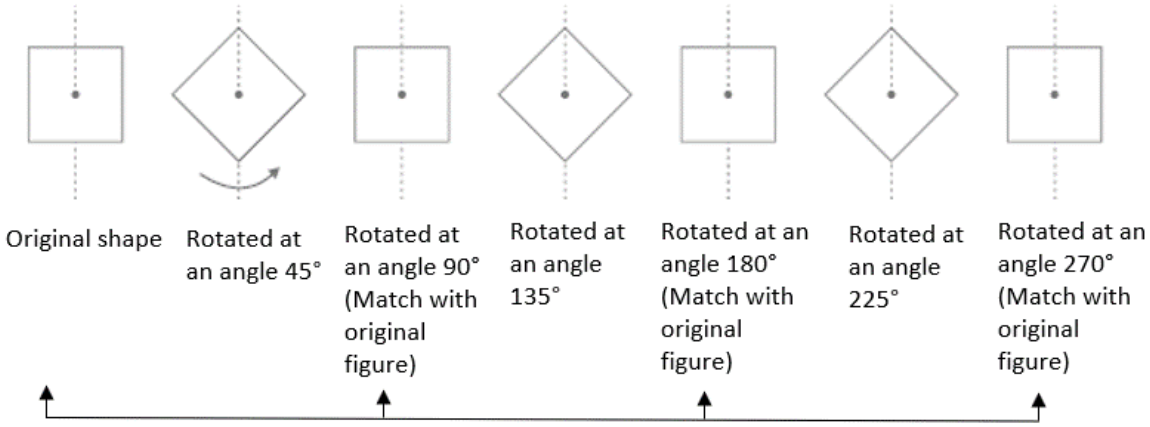
Rotational symmetry of plane figures

Understanding: Rotational Symmetry of Plane Figures

- A figure has rotational symmetry if it looks the same after a rotation about a point.
- The point around which the figure is rotated is called the centre of rotation.
- The number of times the figure looks exactly the same in one full rotation (360°) is called its order of rotational symmetry.

Important Points

- A full rotation is 360°
- If a figure looks the same more than once before completing 360°, it has rotational symmetry
- If it looks the same only once, its order of rotational symmetry is 1
- Higher order means more symmetry



Examples with Solutions

Example

Does a square have rotational symmetry? What is its order?

A square looks the same at 90°, 180°, 270°, and 360°

- Yes, order of rotational symmetry = 4

Example

What is the order of rotational symmetry of an equilateral triangle?

It matches at 120°, 240°, and 360°

- Order of rotational symmetry = 3

Example

Does a rectangle have rotational symmetry?

Yes, it matches at 180° and 360°

- Order of rotational symmetry = 2

Example

What is the rotational symmetry of the letter "Z"?

It only looks the same at 180°

- Order of rotational symmetry = 2

Example

Does a regular pentagon have rotational symmetry?

Yes, it looks the same at every 72° ($\frac{360^\circ}{5}$)

- Order of rotational symmetry = 5

Summary Points

- Rotational symmetry means a figure looks the same after turning it around a point.
- Full rotation is 360°.
- Order of symmetry = number of times it matches in one full turn.
- Regular shapes like square, triangle, and circle have rotational symmetry.
- A shape with order 1 has no proper rotational symmetry.