

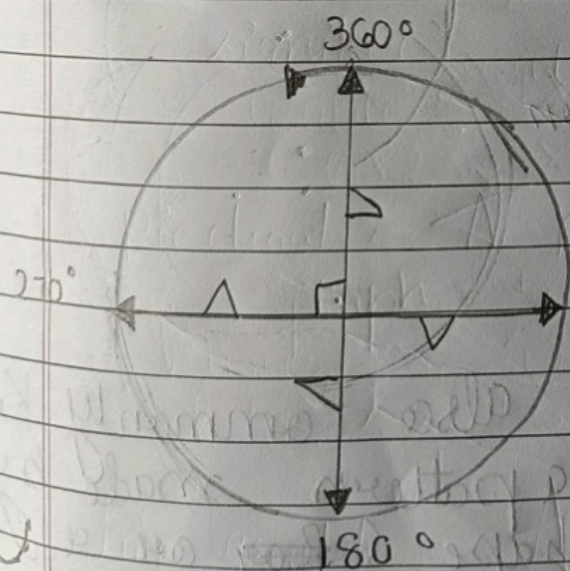
Lh - 12. Symmetry and Patterns

Notes

- (1) Symmetry - Symmetry is the concept where one half of an object or shape is the exact mirror image of the other half.
- (2) Rotation - Rotation is a process when a figure is turned clockwise or anti-clockwise about a fixed point.
- (3) point of Rotation - The fixed point is called the point of rotation or centre of Rotation.

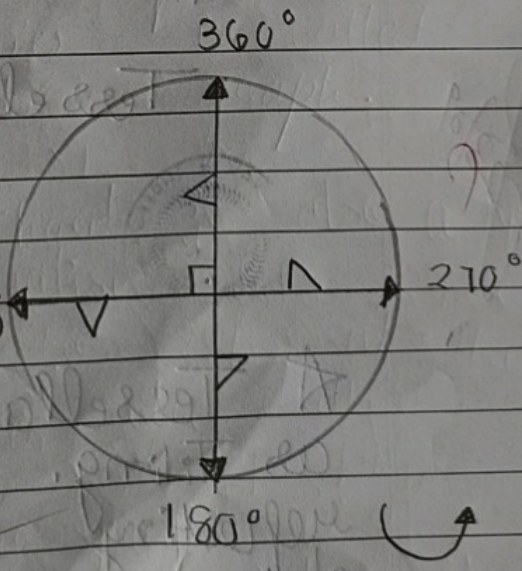
(4) Angle of Rotation - The angle through which the figure takes a turn about the point of rotation is called the angle of rotation.

Rotation in degrees



clockwise

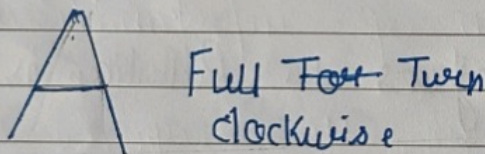
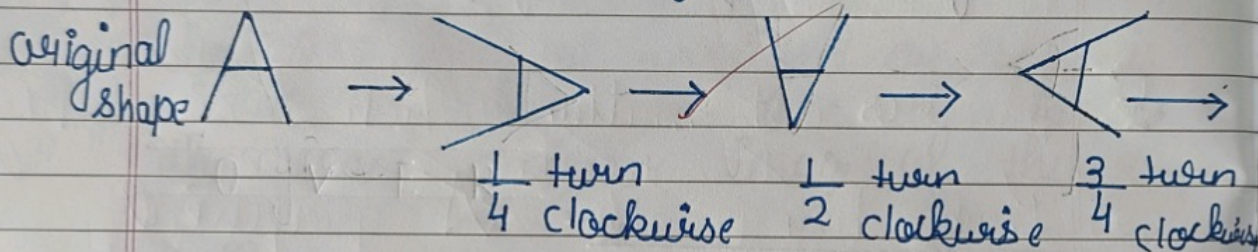
Rotation in degrees



Anti-clockwise

Rotational symmetry

The rotational symmetry of a figure occurs if it appears the same as it fits onto itself two or more times during a complete rotation of 360° about a fixed point.



Tessellation



★ Tessellation also commonly known as Tiling. is a pattern made by repeating a shape (or a few shapes) over and over again without leaving any gaps or overlaps to cover a surface.

- Equilateral triangles - Tessellate because they fit together perfectly, with each triangle sharing sides with the others.
- Squares - Tessellate because they fit together perfectly, with each square sharing sides with others.

Symmetry in Tessellations & Patterns.

1. Translational Symmetry
2. Reflection Symmetry
3. Rotational Symmetry

Tessellation with irregular shapes

1. Kite Tessellation
2. Parallelogram Tessellation
3. Scalene Triangle Tessellation

symmetry in 3D shapes

When 3D shapes are cut into two parts such that the two parts look identical, we say that 3D shapes are symmetrical about the cut.

O V E R