# Access answers to Maths NCERT Solutions for Class 7 Chapter 14 – Symmetry Exercise 14.3

**1. Name any two figures that have both line symmetry and rotational symmetry.**

**Solution:-**

Equilateral triangle and Circle.

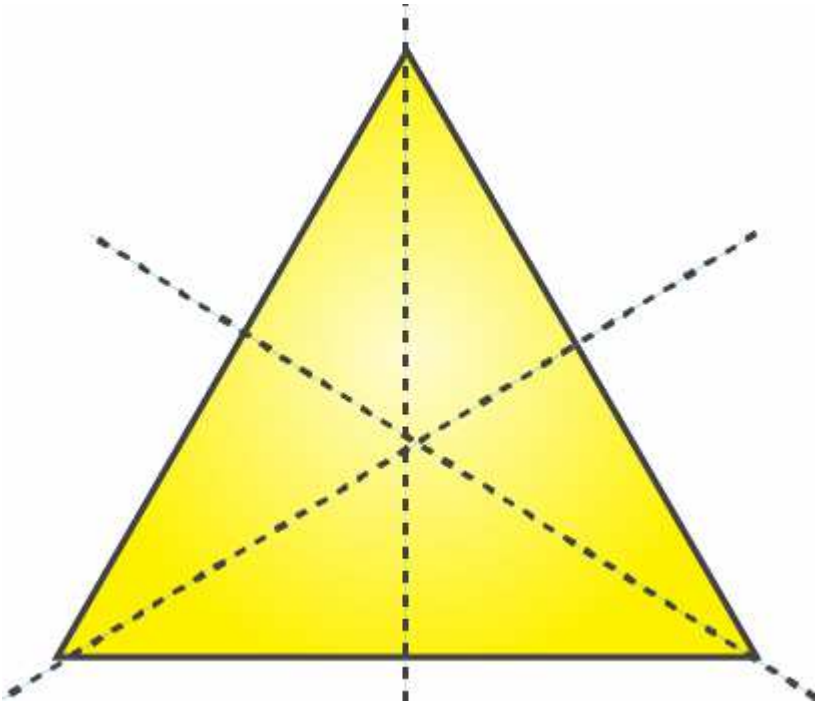
**2. Draw, wherever possible, a rough sketch of**

**(i) a triangle with both line and rotational symmetries of order more than 1.**

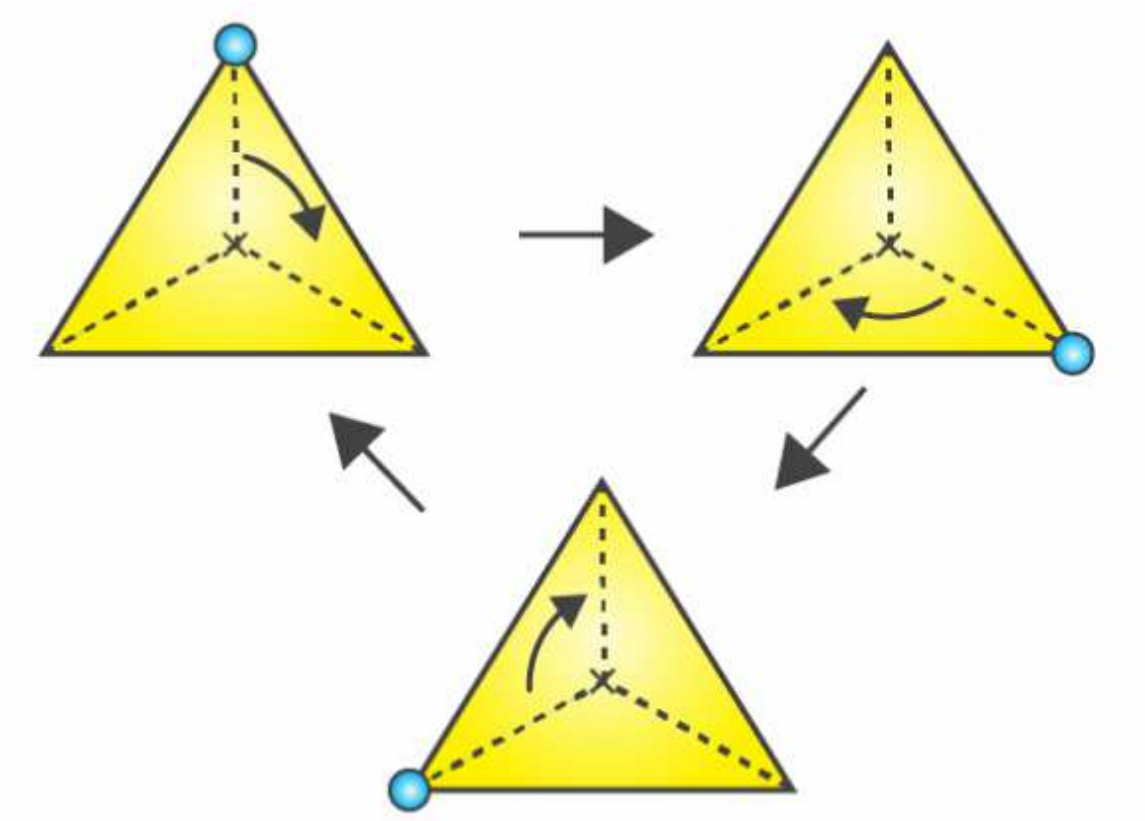
**Solution:-**

A triangle with both line and rotational symmetries of order more than 1 is an equilateral triangle.

**Line symmetry**



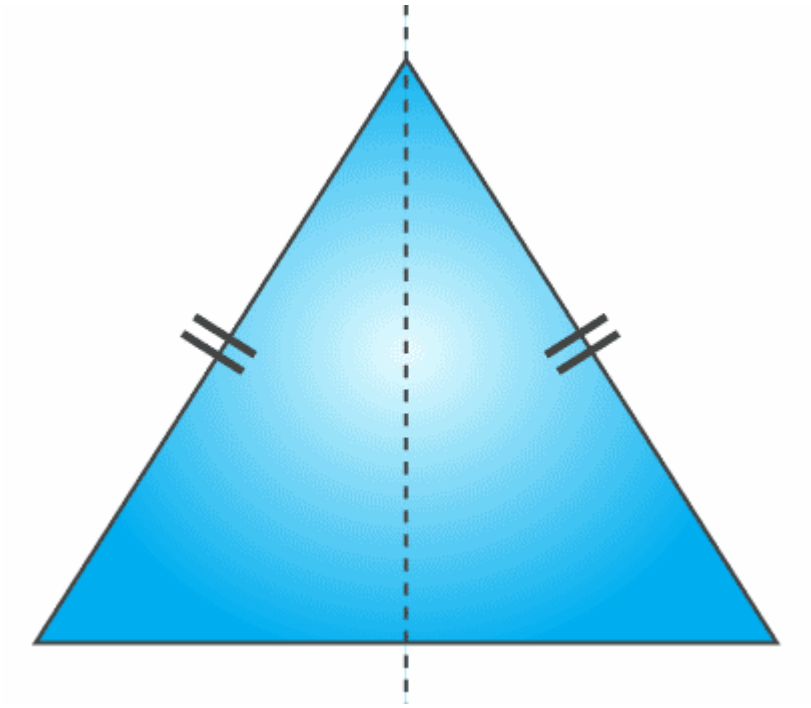
**Rotational symmetry**



**(ii) a triangle with only line symmetry and no rotational symmetry of order more than 1.**

**Solution:-**

A triangle with only line symmetry and no rotational symmetry of order more than 1 is isosceles triangle.



**(iii) a quadrilateral with a rotational symmetry of order more than 1 but not a line symmetry.**

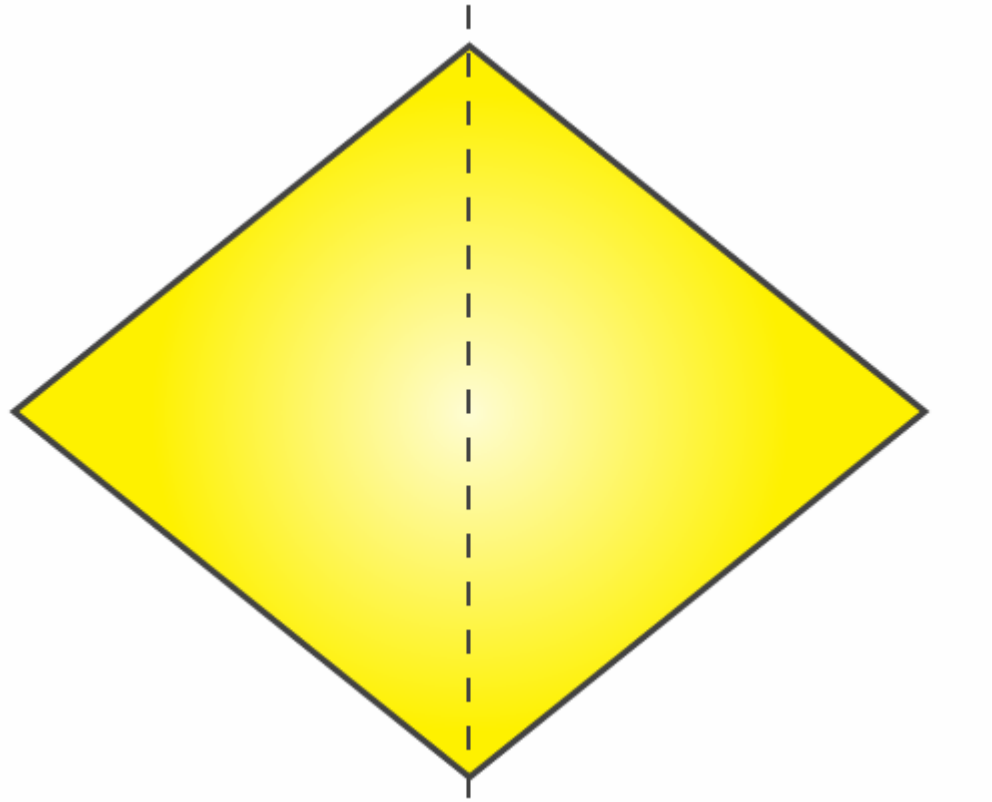
**Solution:-**

A quadrilateral with a rotational symmetry of order more than 1 but not a line symmetry is not possible to draw. Because, a quadrilateral with a line symmetry may have rotational symmetry of order one but not more than one.

**(iv) a quadrilateral with line symmetry but not a rotational symmetry of order more than 1.**

**Solution:-**

A quadrilateral with line symmetry but not a rotational symmetry of order more than 1 is rhombus.



**3. If a figure has two or more lines of symmetry, should it have rotational symmetry of order more than 1?**

**Solution:-**

Yes. If a figure has two or more lines of symmetry, then it will have rotational symmetry of order more than 1.

**4. Fill in the blanks:**

| Shape | Centre of Rotation | Order of Rotation | Angle of Rotation |
|---|---|---|---|
| Square | | | |
| Rectangle | | | |
| Rhombus | | | |
| Equilateral Triangle | | | |

| | | | |
|---|---|---|---|
| **Regular Hexagon** | | | |
| **Circle** | | | |
| **Semi-circle** | | | |

**Solution:-**

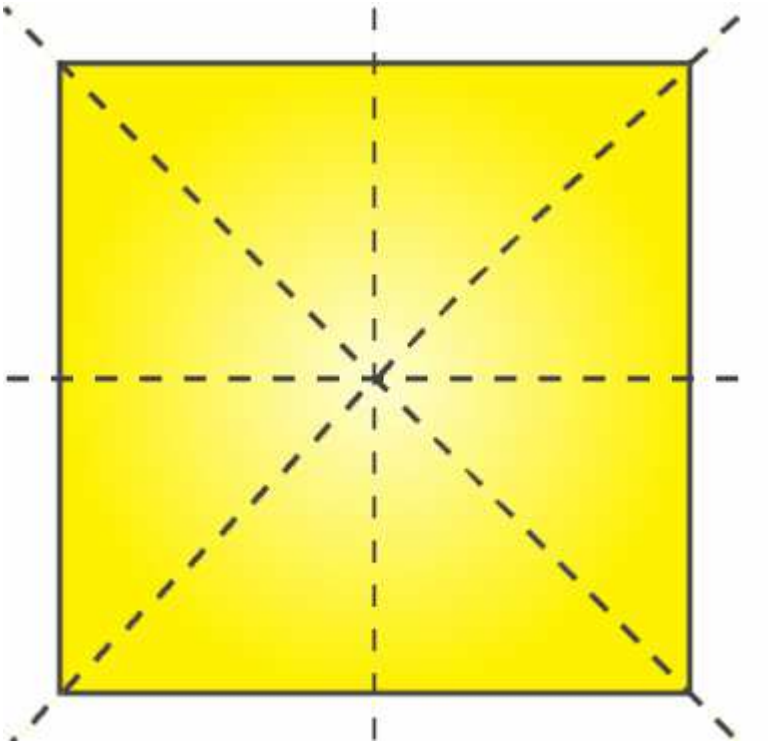
| **Shape** | **Centre of Rotation** | **Order of Rotation** | **Angle of Rotation** |
|---|---|---|---|
| **Square** | Intersecting point of diagonals | 4 | $90^o$ |
| **Rectangle** | Intersecting point of diagonals | 2 | $180^o$ |
| **Rhombus** | Intersecting point of diagonals | 2 | $180^o$ |
| **Equilateral Triangle** | Intersecting point of medians | 3 | $120^o$ |
| **Regular Hexagon** | Intersecting point of diagonals | 6 | $60^o$ |
| **Circle** | Centre | Infinite | Every angle |
| **Semi-circle** | Mid-point of diameter | 1 | $360^o$ |

**5. Name the quadrilaterals which have both line and rotational symmetry of order more than 1.**

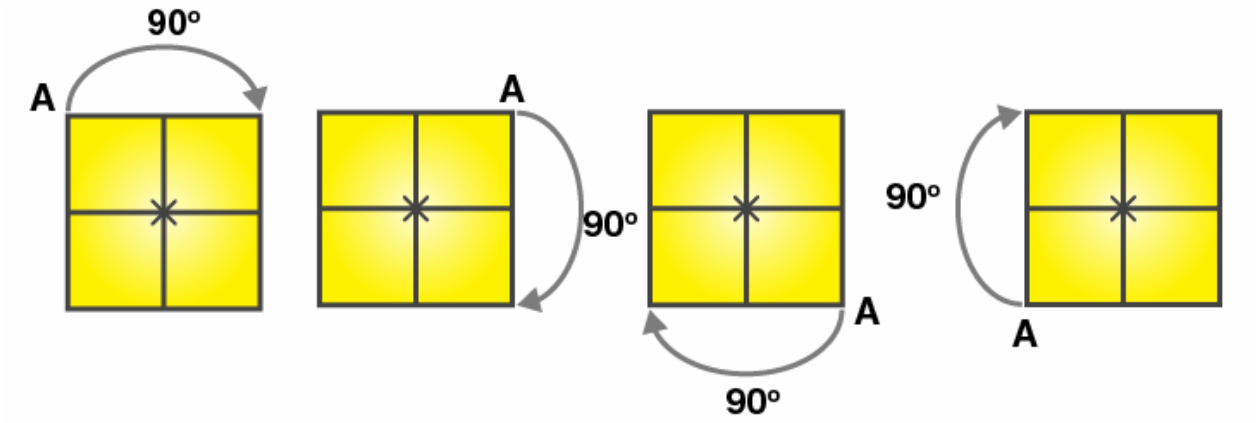
**Solution:-**

The quadrilateral which have both line and rotational symmetry of order more than 1 is square.

Line symmetry:



Rotational symmetry:




**6. After rotating by 60° about a centre, a figure l ooks exactly the same as its original position. At what other angles will this happen for the figure?**

**Solution:-**

The other angles are, 120°, 180°, 240°, 300°, 360°

So, the figure is said to have rotational symmetry about same angle as the first one. Hence, the figure will look exactly the same when rotated by 60° from the last position.

**7. Can we have a rotational symmetry of order more than 1 whose angle of rotation is**

**(i) 45°?**

**Solution:-**

Yes. We can have a rotational symmetry of order more than 1 whose angle of rotation is $45^{o}$.

**(ii) 17°?**

**Solution:-**

No. We cannot have a rotational symmetry of order more than 1 whose angle of rotation is $17^{o}$.