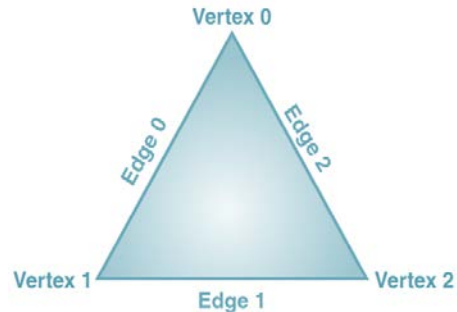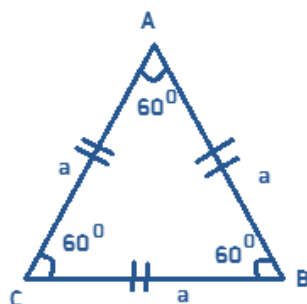# Triangles

## Understanding the Topic

- A triangle is a closed shape with three edge, three angles, and three vertices.

- The sum of all angles in a triangle is always 180°.

- Triangles are named based on their sides and angles.
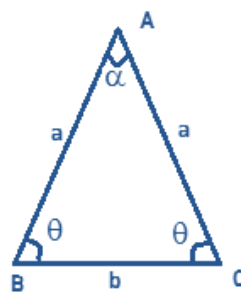
- They are the simplest polygon in geometry.
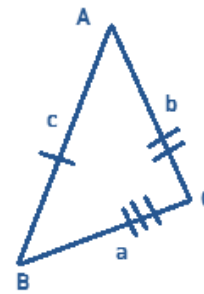


## Types of Triangles Based on Sides

- **Equilateral Triangle –** All three sides are equal

- **Isosceles Triangle –** Two sides are equal

- **Scalene Triangle –** All three sides are different



Equilateral Triangle          Isosceles triangle          Scalene triangle
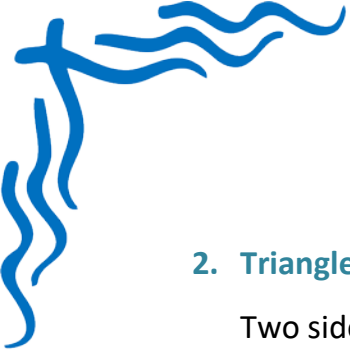
## Types of Triangles Based on Angles

- **Acute-angled Triangle –** All angles are less than 90°

- **Right-angled Triangle –** One angle is exactly 90°

- **Obtuse-angled Triangle –** One angle is more than 90°

## Examples with Solutions

1. **Triangle with all sides 6 cm**

   All three sides are equal

   It is an equilateral triangle

2. **Triangle with sides 5 cm, 5 cm, and 3 cm**

   Two sides are equal

   It is an isosceles triangle

3. **Triangle with angles 70°, 60°, and 50°**

   All angles are less than 90°

   It is an acute-angled triangle

4. **Triangle with one angle 90° and others 60° and 30°**

   One angle is 90°

   It is a right-angled triangle

5. **Triangle with angles 120°, 40°, and 20°**

   One angle is more than 90°

   It is an obtuse-angled triangle

## Summary Points

- A triangle has 3 sides, 3 angles, and 3 vertices.

- Sum of angles in a triangle is always 180°.

- Triangles are classified by sides as equilateral, isosceles, and scalene.

- Triangles are classified by angles as acute-angled, right-angled, and obtuse-angled.

- **Example:** Triangle with 90° angle is a right-angled triangle.