

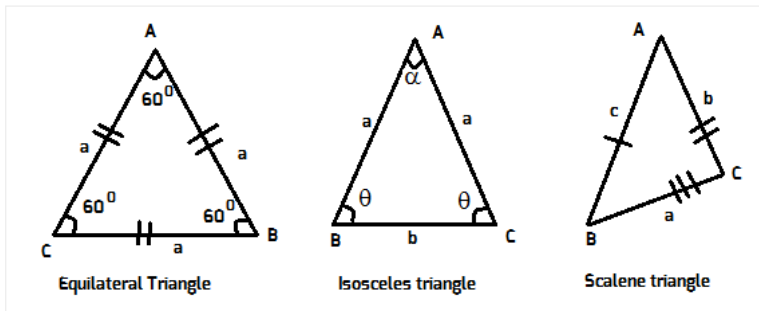
# Types of Triangles and Similarity

Next>>

Triangle is close figure made by three straight lines.

## Types of triangles:

### Based on Sides:

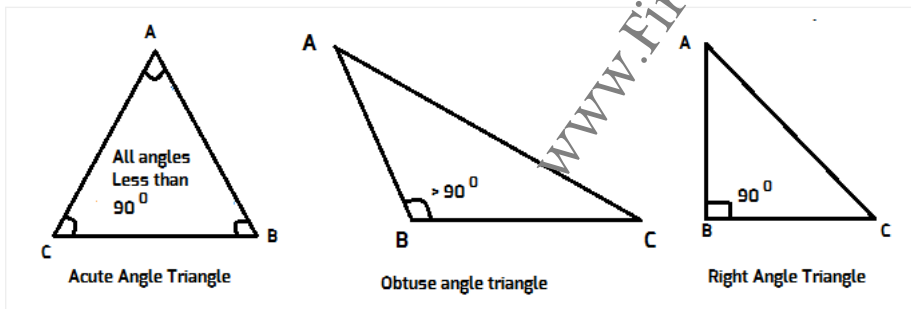


1. **Equilateral triangle:** A triangle where all three sides are equal is called an equilateral triangle. Each angle in this triangle =  $60^\circ$ . An equilateral triangle is also known as equi angles triangle.

2. **Isosceles triangle:** A triangle whose two and only two sides are equal is called an isosceles triangle. Two angles in this triangle are equal.

3. **Scalene Triangle:** A triangle whose all angles and sides are different is called Scalene triangle.

### Based on Angles:

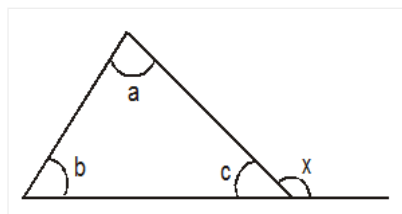


1. **Acute angle triangle:** A triangle whose angles all less than 90 degrees is called acute angle triangle

2. **Obtuse angle triangle:** A triangle which has an angle more than 90 degrees is called Obtuse angle triangle

3. **Right angle triangle:** A triangle which has one angle equal to 90 degrees is called right angle triangle.

## External Angle of a triangle:

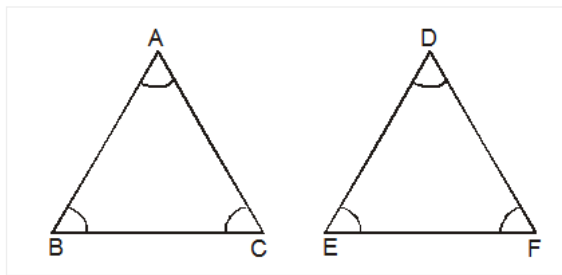


The exterior angle  $x$  is always equal to sum of the two remote internal angles. i.e.,  $\angle x = \angle a + \angle b$

Similarity of triangles \*: (V.Imp)

If two triangles are similar, their sides, their altitudes, their medians are in the same ratio. The mostly occur condition for similarity is AAA similarity.

### AAA Similarity of the triangles\*:



If all the three angles of a triangle is equal to the corresponding three angles of the other triangle, then both the triangles are similar.

If,  $\angle A = \angle D$ ,  $\angle B = \angle E$ ,  $\angle C = \angle F$ , then  $\triangle ABC \approx \triangle DEF$

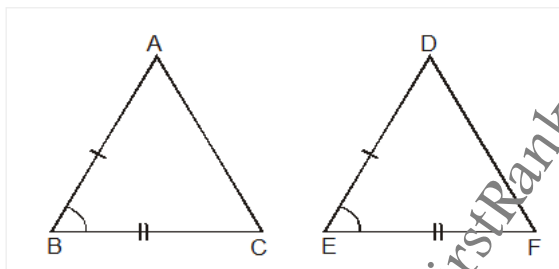
**Note:** While applying the AAA similarity, always look for angles and their corresponding sides in two triangles in the same order.

### SSS similarity of triangles:

If all the three sides of a triangle is in proportion with the corresponding three sides of the other triangle, both the triangles are similar.

If,  $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$ , then  $\triangle ABC \approx \triangle DEF$

### SAS condition of similarity:



If the two sides of a triangle is in proportion with the corresponding two sides of the other triangle and the included angle of one is equal to the included angle of the other

$\frac{AB}{DE} = \frac{BC}{EF}$  then  $\angle B = \angle E$  then  $\triangle ABC \approx \triangle DEF$