



# Basic Concepts

# Triangle

# Classification of Triangles

## Example: 1

The sides of a triangle is 5, 6, 9 then the triangle is-  
एक त्रिभुज की भुजायें 5, 6, 9 हैं, तो त्रिभुज है -

1.) Acute angle triangle

2.) Right angle triangle

3.) Obtuse angle triangle

4.) None of these.

## Example:2

The sides of a triangle is 11, 13, 15 then the triangle is-  
एक त्रिभुज की भुजायें 11, 13, 15 हैं, तो त्रिभुज है -

1.) Acute angle triangle

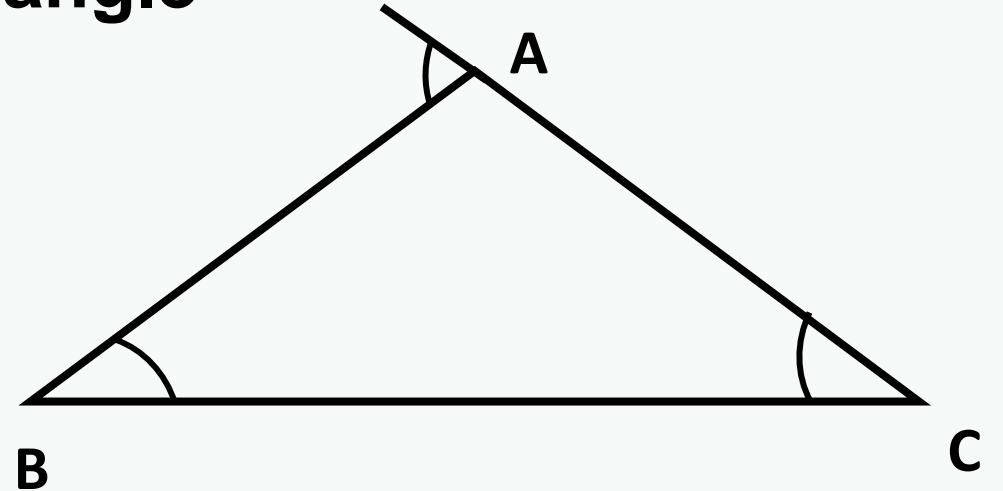
2.) Right angle triangle

3.) Obtuse angle triangle

4.) None of these.

# Theorem

**Sum of the two interior angle is equal to the exterior angle of third(opposite) angle**



$$\angle B + \angle C = m \angle A$$

### Example: 3

In a triangle ABC, BC is produced to D so that  $AC = DC$ . If  $\angle BAD = 110^\circ$  and  $\angle ACB = 80^\circ$ , then  $\angle ABC$  is equal to

त्रिभुज ABC में, BC को D तक इसप्रकार बढ़ाया जाता है कि  $AC=DC$  है, यदि  $\angle BAD = 110^\circ$  और  $\angle ACB = 80^\circ$ , तो  $\angle ABC$  बराबर है

1.)  $30^\circ$

2.)  $80^\circ$

3.)  $50^\circ$

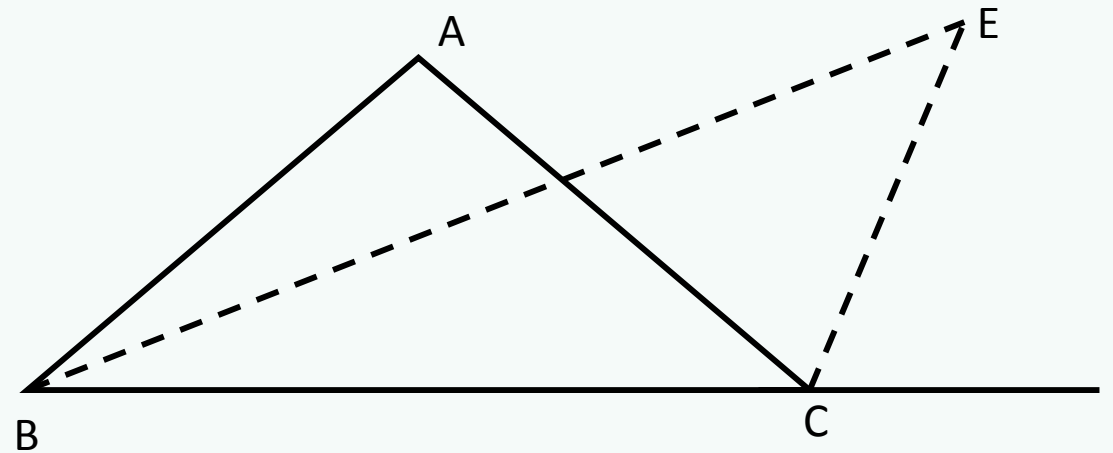
4.)  $40^\circ$



# Theorem

**Angle formed by the interior angle bisector of one of the base angle and angle bisector of exterior angle of other base angle is half of the third (vertex) angle.**

$$\angle BEC = \frac{\angle BAC}{2}$$



### Example: 4

In a triangle  $ABC$ , the bisector of the internal angle  $\angle ABC$  and exterior angle  $\angle C$  intersect at  $D$ . If  $\angle BAC = 80^\circ$ , then  $\angle BDC$  is equal to

एक त्रिभुज  $ABC$  में, अन्तः कोण  $\angle ABC$  और बाह्य कोण  $\angle C$  के अर्द्धक एक दुसरे को बिंदु  $D$  पर प्रतिच्छेद करते हैं। यदि  $\angle BAC = 80^\circ$  हैं, तो  $\angle BDC$  बराबर है-

1.)  $30^\circ$

2.)  $80^\circ$

3.)  $50^\circ$

4.)  $40^\circ$

