TRIANGLES

Similar Triangles

Two triangles are said to be similar if (i) their corresponding angles are equal and (ii) their corresponding sides are proportional.

Basic Proportionality Theorem

In a triangle, a line drawn parallel to one side, to intersect the other two sides in distinct points, divides the two sides in the same ratio.

Similarity of Triangles:

- In two triangles if, the corresponding angles are equal, then their corresponding sides are proportional (i.e., in the same ratio) and hence the triangles are similar.
- If the corresponding sides of two triangles are proportional (i.e., in the same ratio), then, their corresponding angles are equal and hence the triangles are similar.
- If one angle of a triangle is equal to one angle of the other triangle and the sides including these angles are proportional, the triangles are similar.

Converse of Basic Proportionality Theorem

If a line divides any two sides of a triangle in the same ratio, the line must be parallel to the third side.

Pythagoras Theorem

In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.

The ratio of the areas of two similar triangles is equal to the ratio of the squares of the corresponding sides.

Converse of Pythagoras Theorem

In a triangle, if the square of one side is equal to the sum of the squares of the other two sides, then the angle opposite to the first side is a right angle.

The bisector of an angle of a triangle divides the opposite side in the ratio of the sides containing the angle.