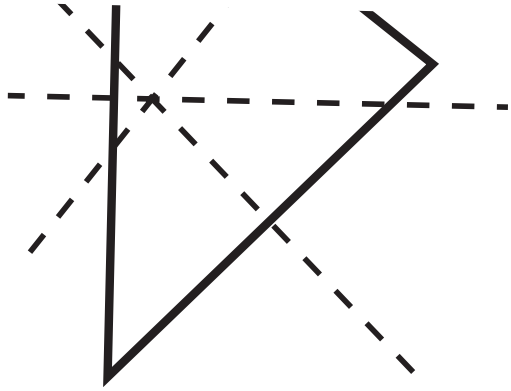

Activity 9

Circumcentre of a triangle

Objective

To illustrate that the perpendicular bisectors of the sides of a triangle concur at a point (called the circumcentre) and that it falls

a. inside for an acute-angled triangle.

b. on the hypotenuse of a right-angled triangle.

c. outside for an obtuse-angled triangle.

Pre-requisite knowledge

Familiarity with Activity 1A.

Material Required

Coloured paper, pencil, a pair of scissors, gum.

Procedure

1. Cut an acute angled triangle from a coloured paper and name it as ABC.
2. Form the perpendicular bisector EF of AB using paper-folding method.
3. Similarly get the perpendicular bisectors GH and IJ of the sides AC and BC respectively.
4. Repeat the activity for right and obtuse angled triangles.

Observations

1. The students see that the three perpendicular bisectors (the three creases obtained) are concurrent.
2. For the acute angled triangle, the circumcentre lies inside the triangle as shown in Fig 9 (a).
3. For the right angled triangle, the circumcentre is the mid point of the hypotenuse as shown in Fig 9 (b)
4. For the obtuse angled triangle, the circumcentre lies outside the triangle as shown in Fig 9 (c).

Learning Outcomes

1. The circumcentre is equidistant from the three vertices of the triangle. Hence a circle can be drawn passing through the three vertices with circumcentre as the center. This circle is called circumcircle.
2. The perpendicular bisectors of the sides of a triangle can never form a triangle since they pass through a point.

Remark

The teacher may encourage the students to provide a proof of concurrence and of the observation about the location of the circumcentre.

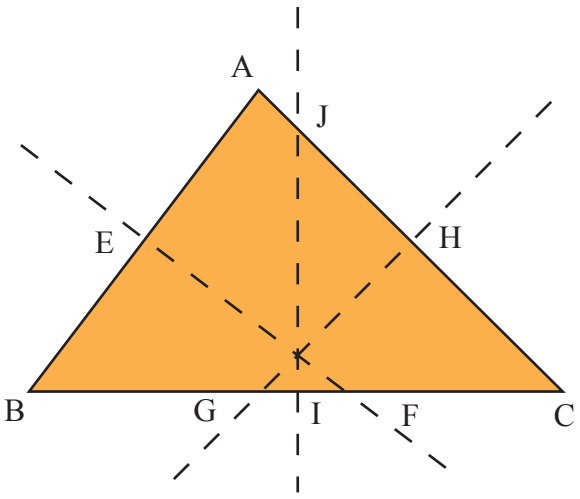

Fig 9 (a)

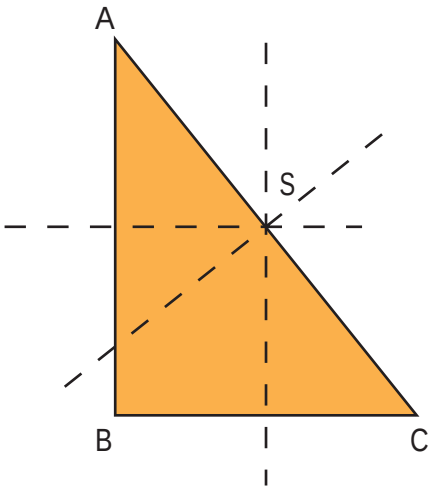

Fig 9 (b)

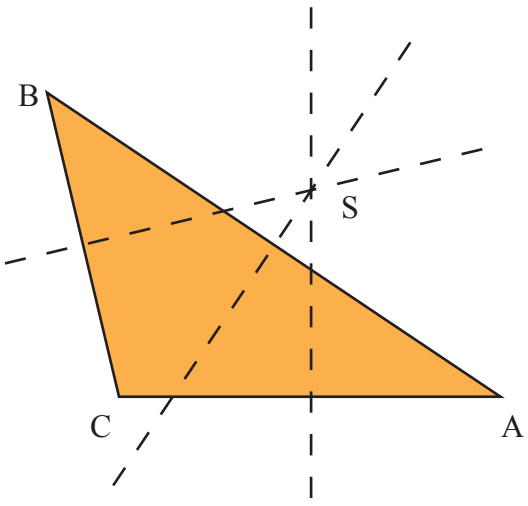

Fig 9 (c)