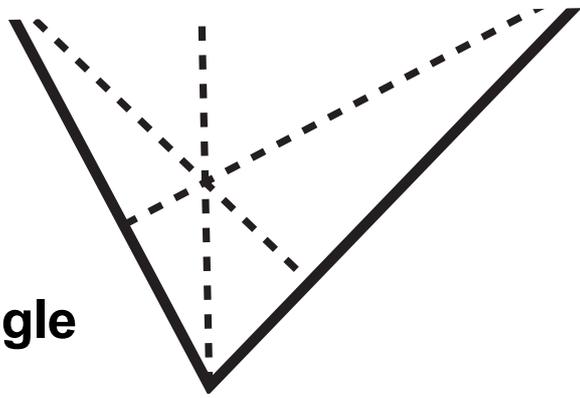


## Activity 11

# Orthocentre of a triangle



### Objective

To illustrate that the altitudes of triangle concur at a point (called the orthocentre) and that it falls

- inside for an acute angled triangle.
- at the right angle vertex for a right angled triangle.
- outside for an obtuse angled triangle.

### Pre-requisite knowledge

Familiarity with Activity 1A.

### Material Required

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

### Procedure

1. Take three rectangular sheets of paper and draw three types of triangles on each of the sheet: acute angled, right angled and obtuse angled.
2. For the acute angled triangle, fold the perpendicular through the vertex to the opposite side. This is one of the altitudes.
3. Make similar folds to get the other two altitudes. Locate the point of intersection of the altitudes.
4. Repeat the same activity for right and obtuse angled triangles.

### Observations

1. The students observe that the three altitudes of a triangle are concurrent. This point is called the orthocentre (O).
2. For the acute angled triangle, the orthocentre lies inside the triangle as shown in Fig 11 (a).
3. For the right angled triangle, the orthocentre is the vertex of the right angle as shown in Fig 11 (b).
4. For the obtuse angled triangle, the orthocentre lies outside the triangle as shown in Fig 11 (c).

### Learning Outcomes

Students learn that the altitudes 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 the concurrence of altitudes and of the observation of the location of the orthocentre.

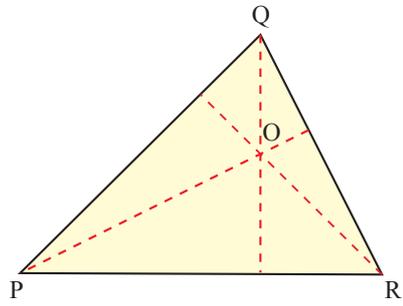


Fig 11 (a)

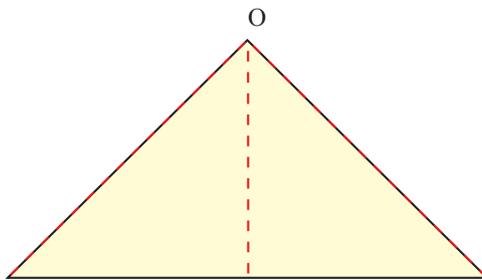


Fig 11 (b)

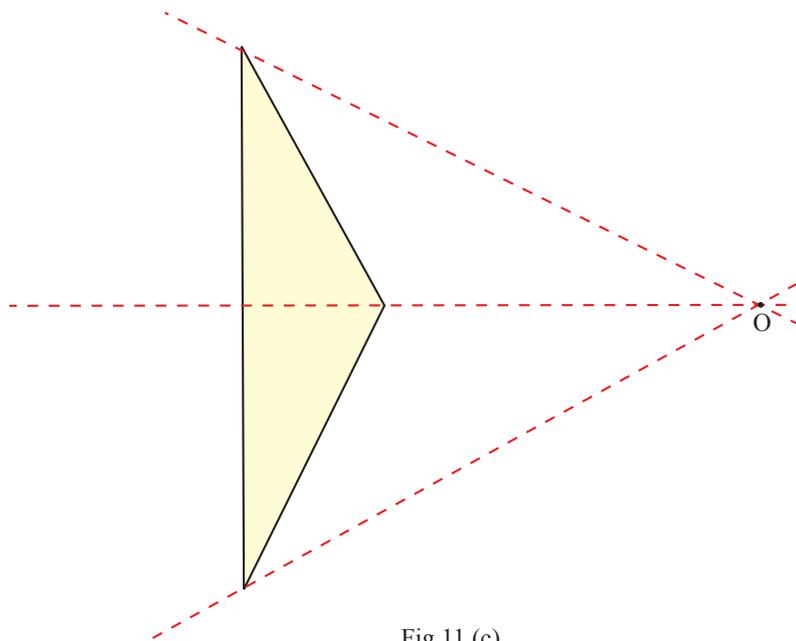


Fig 11 (c)