Topic

Centroid of a Triangles

Objective

To find the centroid of a triangle using paper cutting and folding activity.

Previous Knowledge Required

1. Concept of finding the mid-point of a line segment by paper folding.
2. Definition of medians.
3. Meaning of Centroid.

Material Required

Coloured papers, a pair of scissors, pencil, geometry box, fevistick.

Procedure

1. Cut an acute-angled triangle ABC from a coloured sheet of paper.

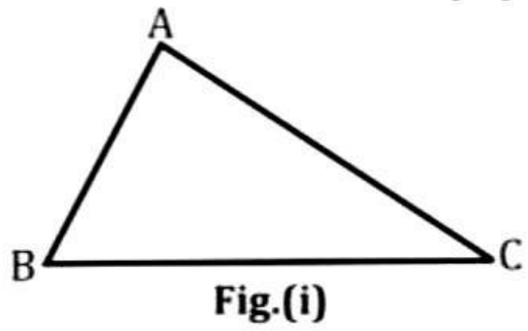

Fig.(i)

2. Find the mid-points of sides AB, BC and AC by paper folding.

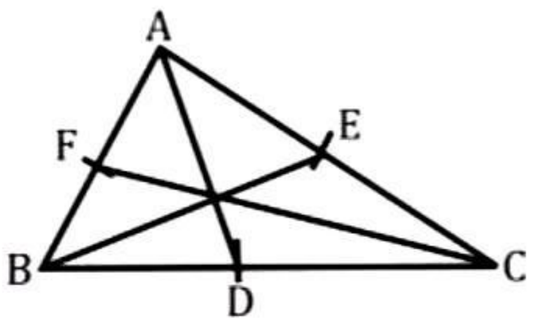

Fig.(ii)

3. Fold the triangle along with AD, press it and unfold it, along with BE, press it and unfold it, similarly fold the triangle along with CF, fold it press it and unfold it.
4. We get three creases AD, BE and CE These three creases are called medians and they meet or intersect or pass through one point say G.

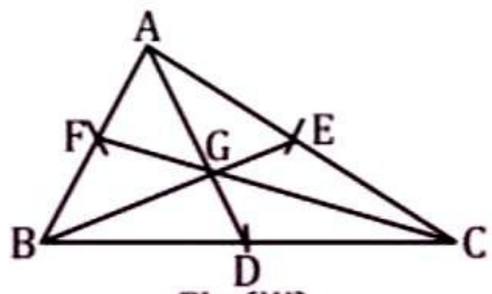

Fig.(iii)

5. This point G is known as the centroid of an ΔABC.

Observation

We get three medians of ΔABC as AD, BE and CF.

The point of concurrence is known as the centroid of a ΔABC.

Result

All three medians in a triangle intersect at a point called the centroid of the triangle.

Learning Outcome

Medians of an acute-angled triangle concurred at a point known as centroid, which always lies inside the triangle.

Activity Time

Verify that the centroid of an obtuse-angled triangle and a right-angled triangle always lie inside the triangle.

VIVA VOCE

Q 1. Define centroid.

Ans. It is the point of concurrence of all three medians of a triangle.

Q 2. Does the centroid lie outside the triangle?

Ans. No. It always lies inside the triangle.

Q 3. In what ratio, the centroid divides the median from vertex to mid-point of the opposite side?

Ans. 2:1

Q 4. Define median.

Ans. A line segment joining a vertex to the mid-point of its opposite side is known as a median.

Q 5. Is it correct to say that all three medians in a triangle are the same in length?

Ans. No

MULTIPLE CHOICE QUESTIONS

Q 1. In a triangle, the centroid divides medians of the triangle in the ratio:

(a) 1: 2 (b) 2: 1 (c) 2: 3 (d) None of these

Q 2. In a triangle ABC, if BD and AE are two medians that intersect at M. If BM = 6 cm, what is the value of BD?

(a) 10 cm (b) 2 cm (c) 9 cm (d) None of these

Q 3. In a triangle EFG, if EP and FQ are two medians intersecting at M such that MP = 8 cm, then the value of EM will be:

(a) 16 cm (b) 4 cm (c) 12 cm (d) None of these

Q 4. If PM and QR are two medians intersecting inside the ΔPQS at the point G, such that QG = 5 cm, then GR will be:

(a) 2.5 cm (b) 10 cm (c) 4.5 cm (d) None of these

Answer Key

1.(b)	2.(c)	3.(a)	4.(a)