

# MATHEMATICS PROJECT ANNUAL TERM EVALUATION

2015-2016

CLASS: 9

## TOPIC: MID-POINT THEOREM

**STATEMENT:** The straight line joining mid-points of any two sides of a triangle is parallel to the third side and is equal to half of it.

**OBJECTIVE:** To verify the above theorem through activity.

**PRE-ACQUIRED KNOWLEDGE:** If a transversal cuts two straight lines and if a pair of corresponding angles are equal, then the straight lines are parallel.

## MATERIAL REQUIRED:

1. Sheets of white paper and tracing paper.
2. Geometry box
3. Coloured ball point pens
4. Pair of scissors
5. Fevistick/gum

## PROCEDURE:

1. Draw any triangle ABC, on a white sheet of paper and mark mid-points D, E and F of the sides AB, AC and BC respectively as shown in the figure

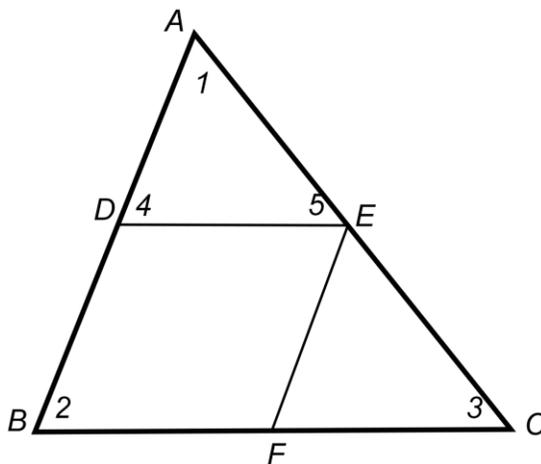


Figure 1

2. Mid-points can be marked by folding triangle – let A fall on B and form a crease to get D. Likewise you need to get the points E and F.
3. Mark the angles by the numerals 1, 2, 3, 4 and 5 as shown in the figure 1.
4. Draw horizontal lines in the triangle ABC by pink ball point pen.
5. Make a replica of the triangle ADE on a tracing paper and draw vertical line with blue ball point pen as shown in figure 2.

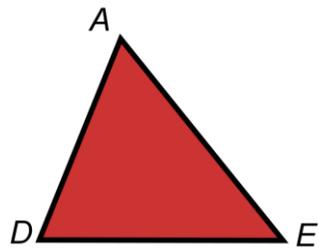


figure 2

6. Paste the triangle ADE on the triangle EFC as shown in figure 3.

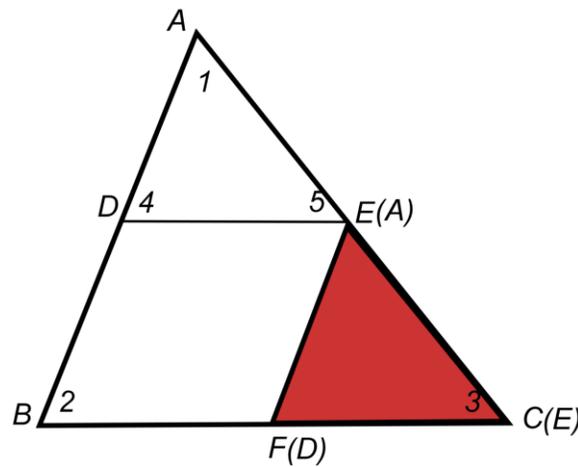


Figure 3

**RESULT:**

1. We observe that the triangle ADE exactly covers the triangle EFC and note that the vertex A of triangle ADE falls on the vertex E of  $\triangle EFC$ , the vertex D falls on vertex F and the vertex E falls on the vertex C.
2. It follows that  $\angle 5 = \angle 3 \Rightarrow DC \parallel BC$  (correspondence  $\angle s$  are equal)
3.  $DE=FC \Rightarrow DE = \frac{1}{2}BC$  ( $\because$  F is the mid – point of BC, so  $FC = \frac{1}{2}BC$ )
4. Hence the straight line joining mid-points of any two sides of a triangle is parallel to the third side and is equal to half of it.

