CHAPTER - 9
TRIANGLES

EXERCISE - 9.4

1. A point **E** is taken on the side BC of a parallelogram ABCD.AE and DC are produced to meet at **F**.Prove that $ar(ADF) = ar(ABFC)$.

2. The diagonals of a parallelogram ABCD intersect at a point **O**.Through **O**,a line is drawn to intersect AD at **P** and BC at **Q**.Show that PQ divides the parallelogram into two parts of equal area.

3. The medians BE and CF of a triangle ABC intersect at **G**.Prove that the area of $\triangle$GBC= area of the quadrilateral AFGE.

4. In Fig.1,$CD \parallel AE$ and $CY \parallel BA$.Prove that $ar(CBX) = ar(AXY)$

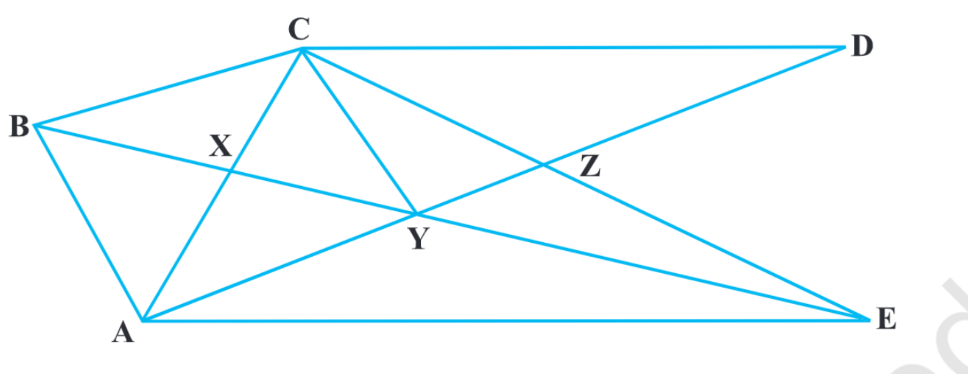

Figure 1

5. ABCD is a trapezium in which $AB \parallel DC$,$DC = 30cm$ and $AB = 50cm$.If **X** and **Y** are,respectively the mid-points of AD and BC,prove that $ar(DCYX) = \frac{7}{9}ar(XYBA)$.

6. In $\triangle$ABC,if **L** and **M** are the points on AB and AC,respectively such that $LM \parallel BC$.Prove that $ar(LOB) = ar(MOC)$.

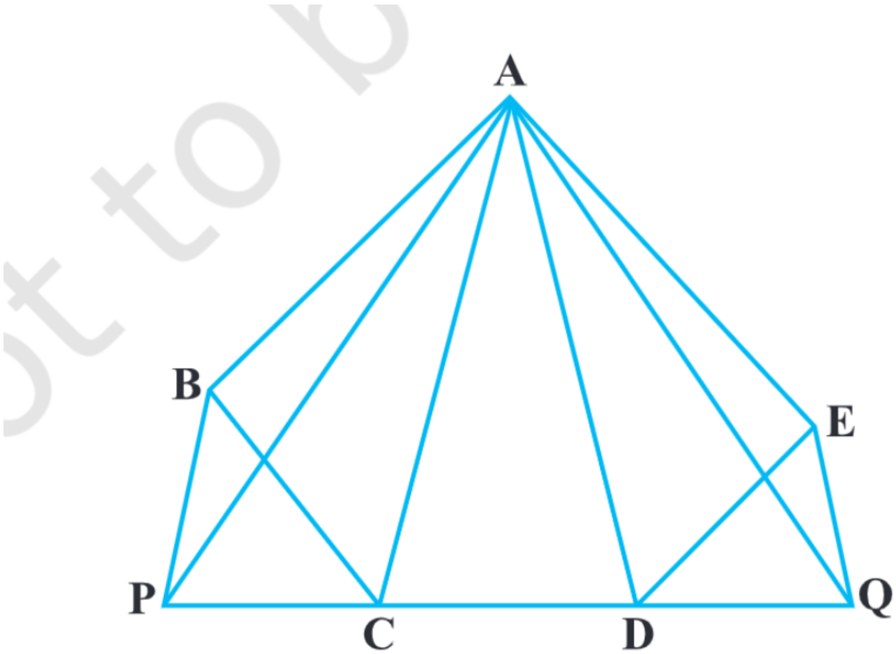

Figure 2

7. In Fig.2,ABCDE is any pentagon.BP drawn parallel to AC meets DC produced at **P** and EQ drawn parallel to AD meets CD produced at **Q**.Prove that $ar(ABCDE) = ar(APQ)$.

8. If the medians of a $\triangle$ ABC intersect at **G**,show that

$$ar(AGB) = ar(AGC) = ar(BGC) = \frac{1}{3}ar(ABC) \tag{1}$$

9. In Fig.3,**X** and **Y** are the mid-points of AC and AB respectively,$QP \parallel BC$ and CYQ and BXP are straight lines.Prove that $ar(ABP) = ar(ACQ)$.

10. In Fig.4,ABCD and AEFD are two parallelograms.Prove that $ar(PEA) = ar(QFD)$ [Hint:Join PD].

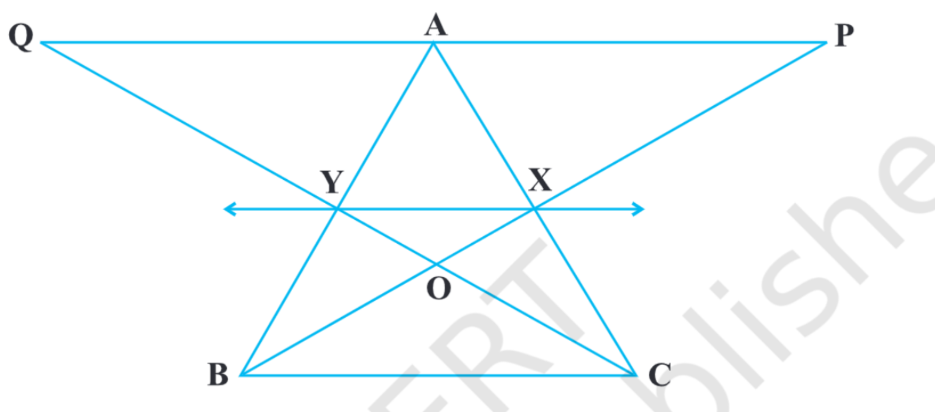

Figure 3

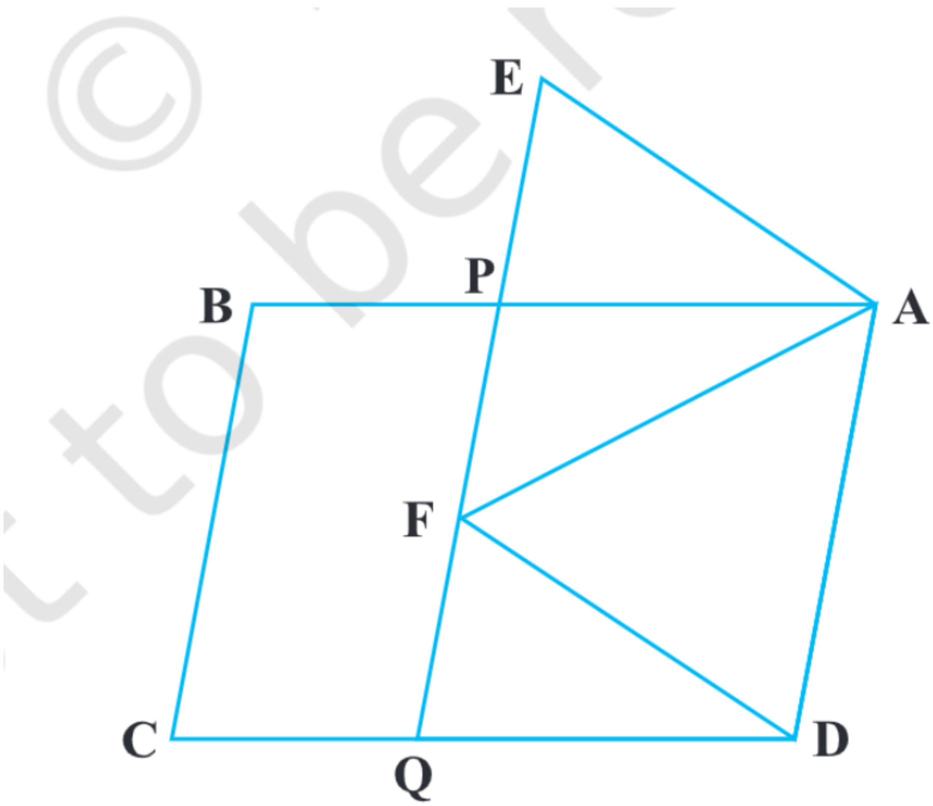

Figure 4