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)

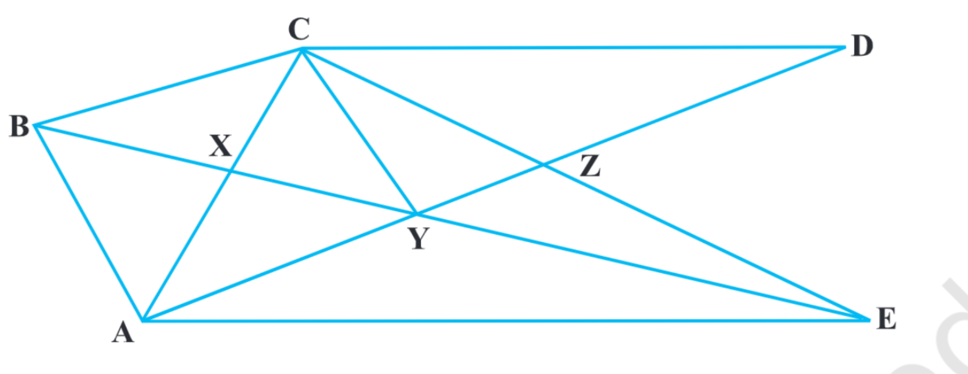

Figure 1

5. ABCD is a trapezium in which AB $\parallel$ DC,DC = 30 cm and AB = 50 cm .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).

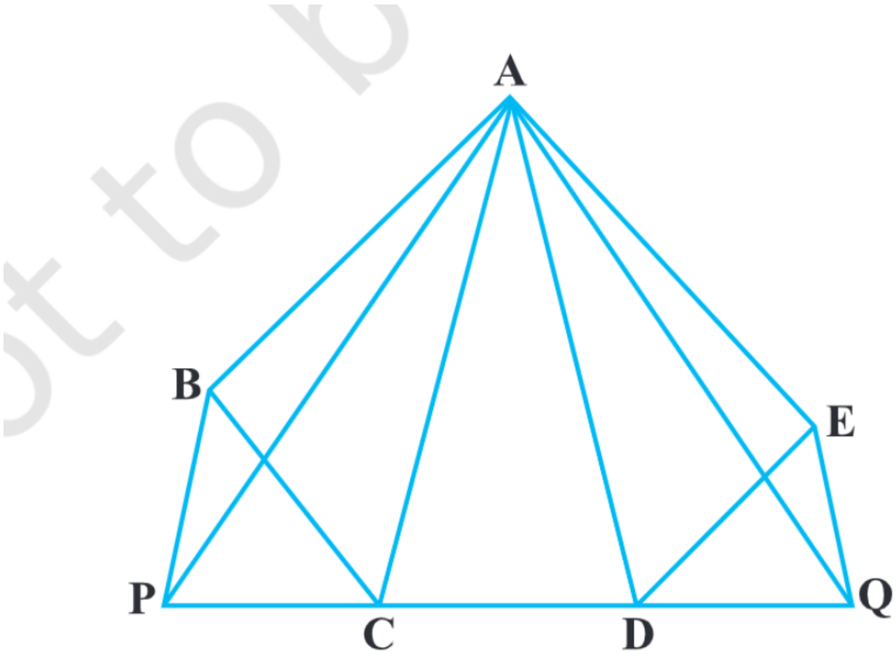

Figure 2

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 $\triangle\mathbf{ABC}$ 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 ∥ BC and CYQ and BXP are straight lines.Prove that ar (ABP) = ar (ACQ).

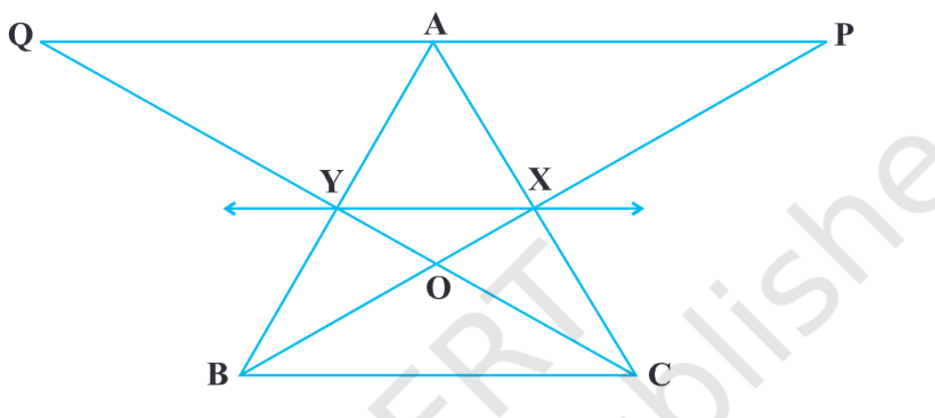

Figure 3

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

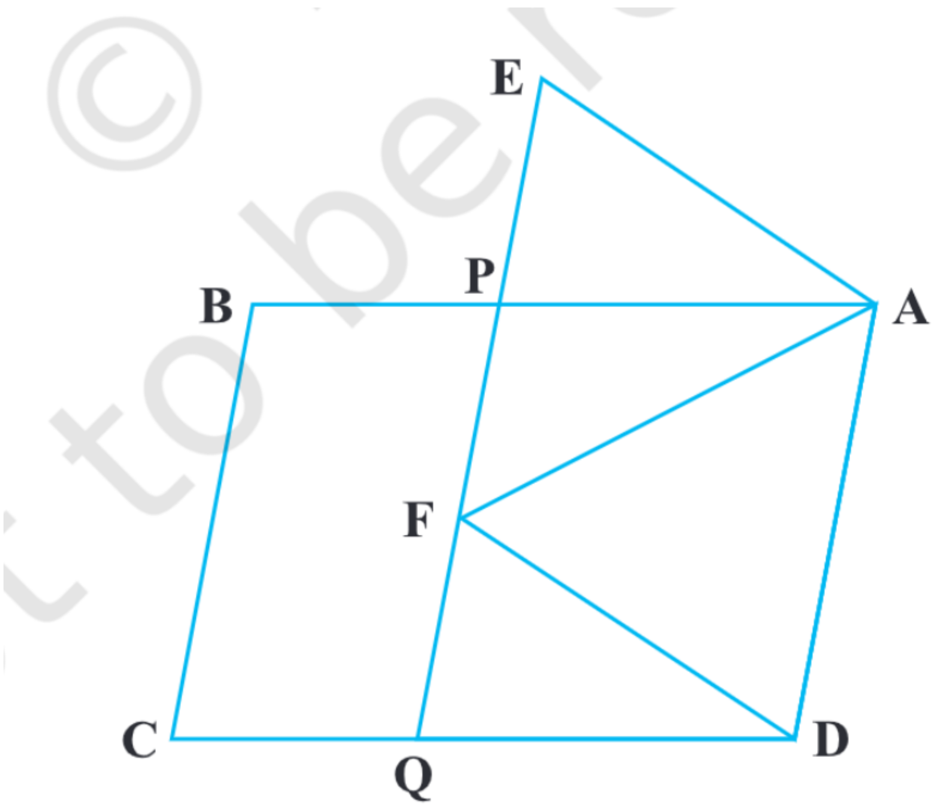

Figure 4