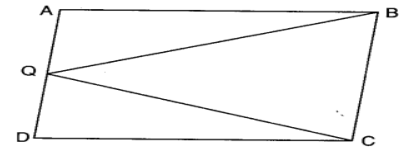
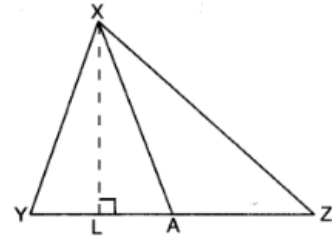


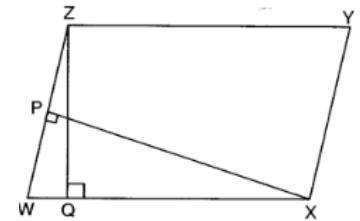
Class – IX

Topic – Area Theorems

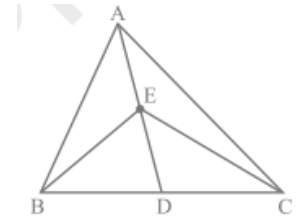
1. Parallelograms on the same base and between the same parallels are equal in area.
2. The area of a triangle is half that of a Parallelogram on the same base and between the same parallels.
3. Prove that a median divides a triangle into two triangles of equal area.
4. In a ΔXYZ , XA is median on side YZ . Find the ratio of $\text{ar}(\Delta XYA) : \text{ar}(\Delta XZA)$.
5. $ABCD$ is a parallelogram and Q is any point on side AD . If $\text{ar}(\Delta QBC) = 10\text{cm}^2$, find $\text{ar}(\Delta QAB) + \text{ar}(\Delta QDC)$.



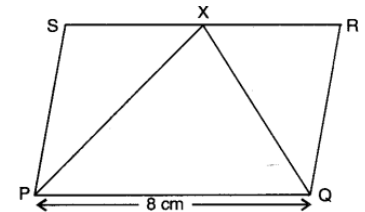
6. $WXYZ$ is a parallelogram with $XP \perp WZ$ and $ZQ \perp WX$, $XP = 8\text{cm}$ and $ZQ = 2\text{cm}$, find YX .



7. In a triangle ABC , E is the mid-point of median AD . Show that $\text{ar}(\Delta BED) = \frac{1}{4} \text{ar}(\Delta ABC)$.



8. In fig, $PQRS$ is a parallelogram with $PQ = 8\text{cm}$ and $\text{ar}(\Delta PXQ) = 32\text{cm}^2$. Find the altitude of parallelogram $PQRS$ and hence its area.
9. Show that the diagonals of a parallelogram divide it into four triangles of equal area.



10. Diagonals AC and BD of a quadrilateral $ABCD$ intersect each other at P . Show that $\text{ar}(\Delta APB) \times \text{ar}(\Delta CPD) = \text{ar}(\Delta APD) \times \text{ar}(\Delta BPC)$.

Answer

1. 1:1
2. 10cm^2
3. $YX = 2\text{cm}$
4. 64cm^2