

M.M. 25

Areas of Parallelograms and Triangles

Time 1 hour

Section A 1 mark each

- Q1. In parallelogram ABCD $AP \perp CD$ and $AQ \perp BC$. If $AB = 30\text{cm}$, $AP = 8\text{cm}$, $AQ = 12\text{cm}$ find AD
- Q2. Show triangles on same base and between same parallel lines are equal in area
- Q3. A diagonal divides a parallelogram into _____ area.

Section B 2 marks each

- Q4. A median divides a triangle into 2 triangles equal in area. Prove
- Q5. Prove area of a quadrilateral is equal to half the product of the diagonal and the sum of perpendiculars from the opposite vertices on this diagonals.

Section C 3 marks each

- Q6. In ΔABC , E is a point on median AD such that $AE : ED = 2:1$. Show area of $\Delta BED = \frac{1}{6}$ area of ΔABC
- Q7. ABCD is a quadrilateral, BD and AC intersect at O.
Prove $\text{ar}(\Delta AOD) \times \text{ar}(\Delta BOC) = \text{ar}(\Delta AOB) \times \text{ar}(\Delta COD)$

Section D 6 marks each

- Q8. Show parallelograms on same base and between same parallel lines are equal in area
- Q9. D, E, F are mid points of sides BC, AD and AB respectively of ΔABC . Prove area of parallelogram BDEF is equal to half area of ΔABC

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