IX
Mathematics
Chapter 12: Heron's Formula
Chapter Notes

Top Definitions

1. The region enclosed with in a simple closed figure is called its area.
2. A plane figure bounded by four sides is a quadrilateral.
3. A quadrilateral is a cyclic quadrilateral if all its four vertices lie on the circumference of the circle.
4. Semi perimeter is half of the perimeter.

Top Concepts

1. For every triangle, the values of (s – a), (s – b), and (s – b) are positive.
2. The line segment joining the mid-point to any of the vertex divides the triangle in two parts, equal in area.
3. The diagonal of a quadrilateral divides the quadrilateral into two triangles.
4. The diagonal of a parallelogram divides the quadrilateral into two congruent triangles.
5. Area of a quadrilateral whose sides and one diagonal are given can be calculated by dividing the quadrilateral into two triangles and using Heron's formula.

Top Formulae

1. In triangle ABC right angled at B, $AB^2 + BC^2 = AC^2$
2. Area of equilateral triangle $= \frac{\sqrt{3}}{4}a^2$ sq units, where 'a' is the side length of an equilateral triangle.
3. Semi-perimeter of equilateral triangle $= \frac{3a}{2}$
4. Area of a triangle $= \frac{1}{2} \times \text{base} \times \text{height}$

5. Area of triangle = $\sqrt{s(s-a)(s-b)(s-c)}$, $s = \text{semi perimeter} = \frac{a+b+c}{2}$

6. Area of parallelogram = base × height

7. Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

8. Area of parallelogram = 2 x (Area of triangle)

9. Area of cyclic quadrilateral = $\sqrt{s(s-a)(s-b)(s-c)(s-d)}$

   $s = \text{semi perimeter} = \frac{a+b+c+d}{2}$

10. Area of a rhombus = $\frac{1}{2} \times$ Product of diagonals

11. Area of a trapezium = $\frac{1}{2} \times$ height x (sum of parallel sides)

12. Area of a quadrilateral =

    $\frac{1}{2} \times$ diagonal x sum of perpendicular from vertices on diagona