

Basic Concepts

1. Area of a triangle with its sides a, b, c is calculated by using Heron's formula, stated as:

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

2. Area of triangle = $\frac{1}{2} \times \text{base} \times \text{height}$
3. Area of an equilateral triangle = $\frac{\sqrt{3}}{4} a^2$, where a is the side of the triangle.
4. Area of an isosceles triangle = $\frac{a}{4} \sqrt{4b^2 - a^2}$, where b is one of the equal sides and a is the third side of the triangle.
5. Area of a quadrilateral whose sides and one diagonal are given, can be calculated by dividing the quadrilateral into two triangles and using the Heron's formula.