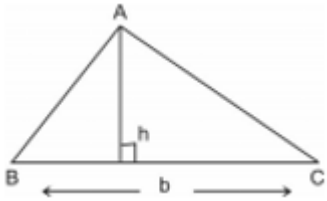
Chapter 12

Heron's Formula

1. **Area of a Triangle – by Heron's Formula**
2. **Application of Heron's Formula in finding Areas of Quadrilaterals**

- Triangle with base 'b' and altitude 'h' is

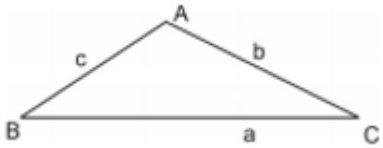
$$Area = \frac{1}{2} \times (b \times h)$$



- Triangle with sides a, b and c

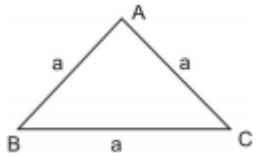
(i) *Semi perimeter of triangle* $s = \frac{a+b+c}{2}$

(ii) $Area = \sqrt{s(s-a)(s-b)(s-c)}$ square units.



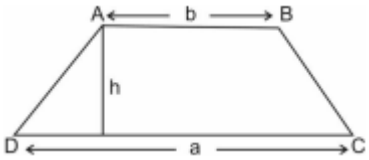
- Equilateral triangle with side 'a'

$$Area = \frac{\sqrt{3}}{4} a^2 \ square\ units$$



- Trapezium with parallel sides 'a' & 'b' and the distance between two parallel sides as 'h'.

$$Area = \frac{1}{2}(a+b)h \ square\ units$$



- Rhombus with diagonals d_1 and d_2

  Area $= \frac{1}{2} d_1 \times d_2$;

  Perimeter $= 2\sqrt{d_1^2 + d_2^2}$