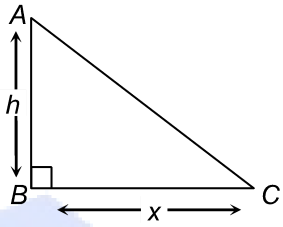
1. AREA OF TRIANGLE WITH GIVEN BASE AND HEIGHT

Area $= \frac{1}{2} \times \text{base} \times \text{height}$

1.1 AREA OF RIGHT-ANGLED TRIANGLE

Let *ABC* right-angled triangle, right-angled at *B* then area



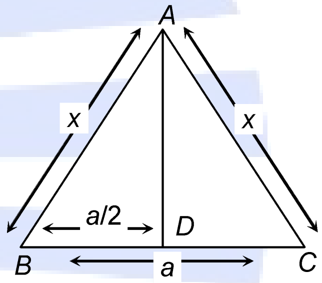
$= \frac{1}{2} \times \text{base} \times \text{height}$

$= \frac{1}{2}(BC) \times (AB)$

$A = \frac{1}{2} \times x \times h$

1.2 AREA OF ISOSCELES TRIANGLE

Let *ABC* be an isosceles triangle such that $AB = AC = x$ and $BC = a$, then



Area $= \frac{1}{2} \times (\text{base}) \times (\text{height})$

$= \frac{1}{2} \times (BC) \times (AD)$

$A = \frac{1}{2} \times a \times \sqrt{x^2 - \frac{a^2}{4}}$

In ΔABD, $\angle D = 90°$ so, by Pythagoras theorem,

$AD = \sqrt{x^2 - \frac{a^2}{4}}$

1.3 AREA OF EQUILATERAL TRIANGLE

Let *ABC* be an equilateral triangle with each side equal to '*a*'

Area $= \frac{\sqrt{3}}{4}(\text{side})^2$ $\quad A = \frac{\sqrt{3}}{4}a^2$

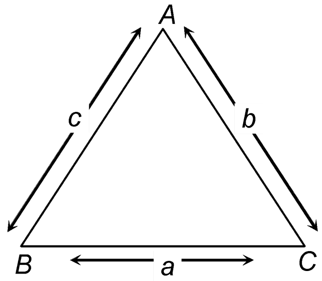
2. AREA OF A TRIANGLE BY HERON'S FORMULA

The formula given by Heron about the area of a triangle is also known as Heron's formula. It is given by

Area of a triangle $= \sqrt{s(s-a)(s-b)(s-c)}$

where a, b, c are the sides of a triangle and S is the semi- perimeter

i.e., $S = \dfrac{a+b+c}{2}$



3. APPLICATION OF HERON'S FORMULA IN FINDING AREAS OF QUADRILATERLS

Heron's formula can be applied to find the area of a quadrilateral by dividing the quadrilateral into two triangular parts.