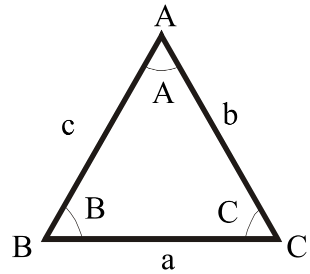
THINGS TO REMEMBER

✶ Relation between the Sides and Angles of Triangle :

In a ΔABC, angles are denoted by A, B and C the lengths of corresponding sides opposite to these angles are denoted by a, b and c respectively. Area and perimeter of a tringle are denoted by and 2s respectively.



Also,

Semi-perimeter of the triangle is

$$s = \frac{a+b+c}{2}$$

Sine Rule

In any ΔABC, the sines of the angles are proportional to the lengths of the opposite side, ie,

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

It can also be written as

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = k \text{ (say)}$$

then a = k sin A, b = k sin B, c = k sin C

Cosine Rule

In any ΔABC cosine of an angle can express in terms of sides.

$$\cos A = \frac{b^2+c^2-a^2}{2bc}$$

$$\cos B = \frac{c^2+a^2-b^2}{2bc}$$

and $$\cos C = \frac{a^2+b^2-a^2}{2bc}$$

Projection Rule

In any ΔABC

a = b cos C + c cos B

b = a cos C + c cos A

c = a cos B + b cos A

Napier's Rule

In any ΔABC

$$\tan\frac{C-A}{2} = \frac{c-a}{c+a}\cot\frac{B}{2}$$

$$\tan\frac{A-B}{2} = \frac{a-b}{a+b}\cot\frac{C}{2}$$