Class - 7th
Subject - math

Lesson - 12 the triangle and its properties

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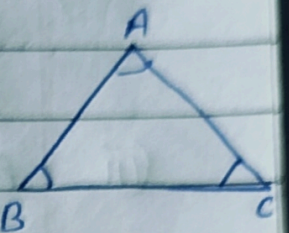
Triangle :- A closed figure formed by three line segments is called a triangle.



A triangle has

(i) three sides - $\overline{AB}$, $\overline{BC}$ and $\overline{CA}$
(ii) three angle - $\angle A$, $\angle B$ and $\angle C$
(iii) three vertices - A, B and C.

A triangle with vertices A, B and C is denoted by $\triangle ABC$.

In the given figure, Side BC is opposite to the vertex A, Side AC is opposite to the vertex B, and side AB is opposite to the vertex C.

Note :- The three sides and three angles of a triangle are called the six parts or elements of a triangle.

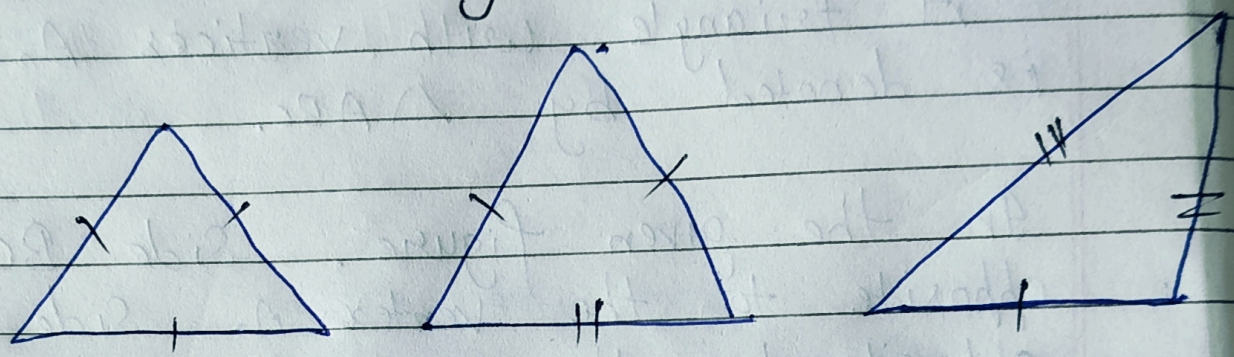
Types of triangles :-

classification on the basis of sides :-

(i) A triangle in which all the three sides are equal is called an equilateral triangle.

(ii) A triangle in which any two of its sides are of equal lengths is called an isosceles triangle.

(iii) A triangle in which all three are of different lengths is called a scalene triangle.



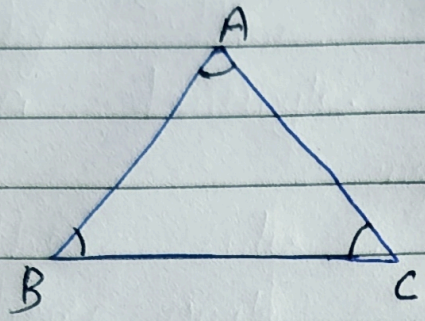
Equilateral triangle | Isosceles triangle | Scalene triangle

Classification on the Basis of Angles:-

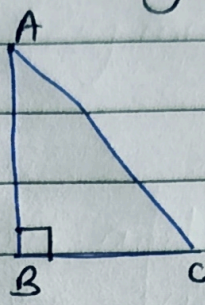
(i) A triangle in which all the angles are less than 90° is called an acute angled triangle.

(ii) A triangle having its one angle as a right angle is called a right angled triangle.

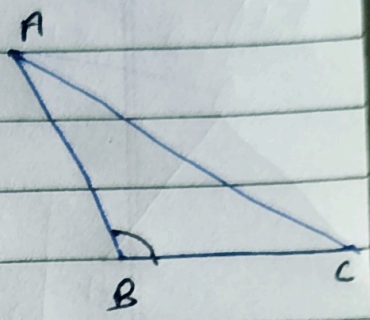
A triangle having one of its angles more than 90° (obtuse) is called an obtuse angled triangle.



Acute angled triangle



Right angled triangle

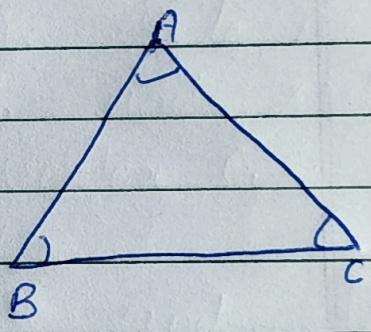


obtuse angled triangle

Note:- The sum of the angles of a triangle is 180°.

i.e.

$\angle A + \angle B + \angle C = 180°$



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Exercise 12.1 Complete.