CHAPTER FIVE

BASIC GEOMETRY

Angle: An angle is formed when two straight lines meet at a point. Example (1)



In the above figure, the lines AO and BO meet at the point O.
Angle AOB or angle BOA are the angles formed. These may also be written as A or BÔA, < AOB or < BOA.



- The lines xy and zy meet at the point y, and the angle formed is angle $xyz (x\hat{y}z)$ or angle $zyx (z\hat{y}x)$.

Types of angles:

1. <u>Right angle or angle 90</u>°



The sum of angles within a right angle is 90°

(2) Acute angle:

This is an angle which is less than 90°, and examples are angles 30°, 45°, 70 and 89°.



(3) :Obtuse angle



- This is an angle which is greater than 90° but less than 180°
- Example are angles 91° , 120° , 145° , 170° and 179°

(4) Reflex angle.



- GOH and JOK are reflex angles, which are angles which are greater than 180° but less than 360°
- Examples are angles 240°, 190°, 300° and 310°

(5)Angle 180° or the straight line



- The sum of angles or the total angles on a straight line is 180°



Find the angle marked x°

Soln.

Since ROP is a straight line, then the sum of angles on $it = 180^{\circ}$

 $=> 120^{\circ} + x = 180^{\circ}, => x = 180^{\circ} - 120^{\circ} = 60^{\circ}, => x = 60^{\circ}$

Q2.



Find the angle marked y°

Soln.

Since PKM is a straight line, then the sum of angles on it is 180° , => $70^\circ + 80^\circ + y$ = 180° ; => $150^\circ + y = 180^\circ$, => $y = 30^\circ$



Calculate the following:

- a. $K \hat{O} P$ or the angle marked *x*.
- b. $P\hat{O}M$ or the angle marked 2x.
- c. $Q\hat{O}M$ or the angle marked 3x.

Soln.

Since KOQ is a straight line, => the sum of angles on it is 180°,

 $=> x + 2x + 3x = 180, => 6x = 180 => x = \frac{180}{6} = 30^{\circ}$

- a) The angle marked *x* or $K\hat{O}P = 30^{\circ}$.
- b) $P\hat{O}M = 2x = 2 \times 30 = 60^{\circ}$.
- c) $Q\hat{O}M = 3x = 3 \times 30 = 90^{\circ}$.