



### Geometrical Constructions Ex 19.5 Q1

**Answer :**

Draw an angle  $\angle BAC$  also draw a ray  $OP$ .

With a suitable radius and  $A$  as centre, draw an arc intersecting  $AB$  and  $AC$  at  $X$  and  $Y$ , respectively.

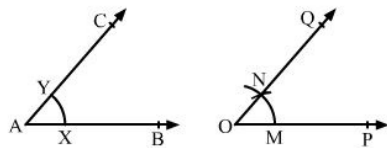
With the same radius and  $O$  as centre, draw an arc to intersect the arc  $OP$  at  $M$ .

Measure  $XY$  using the compass.

With  $M$  as centre and radius equal to  $XY$ , draw an arc to intersect the arc drawn from  $O$  at  $N$ .

Join  $O$  and  $N$  and extend it to  $Q$ .

$\angle POQ$  is the required angle.



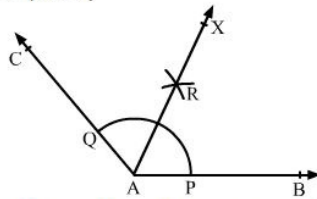
### Geometrical Constructions Ex 19.5 Q2

**Answer :**

Obtuse angles are those angles which are greater than  $90^\circ$  but less than  $180^\circ$ .

Draw an obtuse angle  $\angle BAC$ .

With an appropriate radius and centre at  $A$ , draw an arc such that it intersects  $AB$  and  $AC$  at  $P$  and  $Q$ , respectively



With centre  $P$  and radius more than half of  $PQ$ , draw an arc.

With the same radius and centre at  $Q$ , draw another arc intersecting the previous arc at  $R$ .

Join  $A$  and  $R$  and extend it to  $X$ .

The ray  $AX$  is the required bisector of  $\angle BAC$ .

If we measure  $\angle BAR$  and  $\angle CAR$ , we have

$\angle BAR = \angle CAR = 65^\circ$

**Note:** Bisected Angle so obtained may be different When your obtuse angle is different from this obtuse angle.

### Geometrical Constructions Ex 19.5 Q3

**Answer :**

Draw a ray OA.

With the help of a protractor, construct an angle  $\angle AOB$  of  $108^\circ$ .

$$\therefore 108^\circ \div 2 = 54^\circ$$

$\therefore 54^\circ$  is half of  $108^\circ$ .

To get the angle of  $54^\circ$ , we need to bisect the angle of  $108^\circ$ .

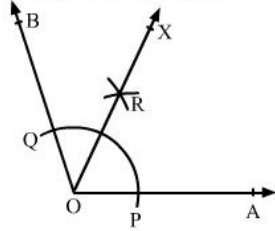
With centre at O and a convenient radius, draw an arc cutting sides OA and OB at P and Q, respectively.

With centre at P and radius more than half of PQ, draw an arc.

With the same radius and centre at Q, draw another arc intersecting the previous arc at R.

Join O and R and extend it to X.

$\angle AOX$  is the required angle of  $54^\circ$ .



#### Geometrical Constructions Ex 19.5 Q4

**Answer :**

We know that a right angle is of  $90^\circ$ .

Draw a ray OA.

With the help of a protractor, draw an  $\angle AOB$  of  $90^\circ$ .

With centre at O and a convenient radius, draw an arc cutting sides OA and OB at P and Q, respectively.

With centre at P and radius more than half of PQ, draw an arc.

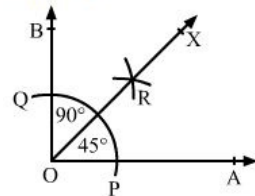
With the same radius and centre at Q, draw another arc intersecting the previous arc at R.

Join O and R and extend it to X.

$\angle AOX$  is the required angle of  $45^\circ$ .

$$\angle AOB = 90^\circ$$

$$\angle AOX = 45^\circ$$



#### Geometrical Constructions Ex 19.5 Q5

**Answer :**

Two angles, which are adjacent and supplementary, are called linear pair of angles.

Draw a line AB and mark a point O on it.

When we draw any angle  $\angle AOC$ , we also get another angle  $\angle BOC$ .

Bisect  $\angle AOC$  by a compass and a ruler and get the ray OX.

Similarly, bisect  $\angle BOC$  and get the ray OY.

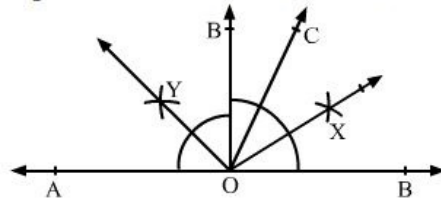
Now

$$\angle XOY = \angle XOC + \angle COY$$

$$= \frac{1}{2} \angle AOC + \frac{1}{2} \angle BOC$$

$$= \frac{1}{2} (\angle AOC + \angle BOC)$$

$$= \frac{1}{2} \times 180^\circ = 90^\circ \text{ (As } \angle AOC \text{ and } \angle BOC \text{ are supplementary angles)}$$



\*\*\*\*\* END \*\*\*\*\*