

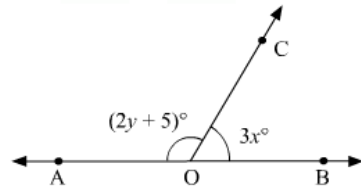


Lines and Angles Ex 8.2 Q1

Answer :

In figure:

Since OA and OB are opposite rays. Therefore, AB is a line. Since, OC stands on line AB. Thus, $\angle AOC$ and $\angle BOC$ form a linear pair, therefore, their sum must be equal to 180° .



Or, we can say that

$$\angle AOC + \angle BOC = 180^\circ$$

From the given figure:

$$\angle AOC = (2y + 5) \text{ and } \angle BOC = 3x$$

On substituting these two values, we get

$$(2y + 5) + 3x = 180$$

$$3x + 2y = 180 - 5$$

$$3x + 2y = 175 \quad \dots(i)$$

(i) On putting $x = 25$ in (i), we get:

$$3(25) + 2y = 175$$

$$75 + 2y = 175$$

$$2y = 175 - 75$$

$$2y = 100$$

$$y = \frac{100}{2}$$

$$y = \boxed{50}$$

Hence, the value of y is $\boxed{50}$.

(ii) On putting in $y = 35$ in equation (A), we get:

$$3x + 2(35) = 175$$

$$3x + 70 = 175$$

$$3x = 175 - 70$$

$$3x = 105$$

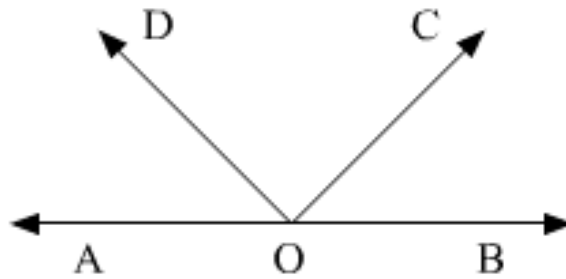
$$x = \frac{105}{3}$$

$$x = \boxed{35}$$

Hence, the value of x is $\boxed{35}$.

Answer :

The figure is given as follows:



The following are the pair of adjacent angles:

$\angle AOD$ and $\angle COD$

$\angle BOC$ and $\angle COD$

The following are the linear pair:

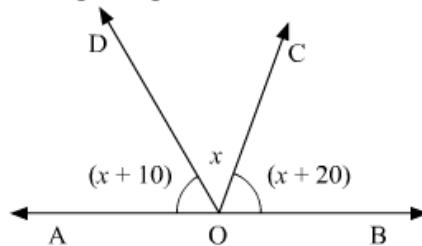
$\angle AOD$ and $\angle BOD$

$\angle BOC$ and $\angle COA$

Lines and Angles Ex 8.2 Q3

Answer :

In the given figure:



AB is a straight line. Thus, $\angle AOD$, $\angle COD$ and $\angle BOC$ form a linear pair. Therefore their sum must be equal to 180° .

We can say that

$$\angle AOD + \angle COD + \angle BOC = 180^\circ \quad (i)$$

It is given that $\angle AOD = (x + 10)^\circ$, $\angle COD = x^\circ$ and $\angle BOC = (x + 20)^\circ$.

On substituting these values in (i), we get:

$$(x + 10) + x + (x + 20) = 180$$

$$x + x + x + 10 + 20 = 180$$

$$3x + 30 = 180$$

$$3x = 180 - 30$$

$$3x = 150$$

$$x = \frac{150}{3}$$

$$x = \boxed{50}$$

It is given that:

$$\begin{aligned}\angle AOD &= x + 10 \\ &= 50 + 10 \\ &= 60\end{aligned}$$

Therefore, $\boxed{\angle AOD = 60^{\circ}}$

Also,

$$\angle COD = x$$

Therefore, $\boxed{\angle COD = 50^{\circ}}$

$$\begin{aligned}\angle BOC &= x + 20 \\ &= 50 + 20 \\ &= 70\end{aligned}$$

Therefore, $\boxed{\angle BOC = 70^{\circ}}$

***** END *****