## Lines and Angles Ex 8.3 Q3

**Answer :**

In the given question, the values of *x*, *y*, and *z* will be determined as follows:
*z* and 25° form a linear pair.
So, $z + 25° = 180° \Rightarrow z = 180 - 25 \Rightarrow z = 155°$

Now, *z* and *x* are vertically opposite to each other. So, $x = 155°$.

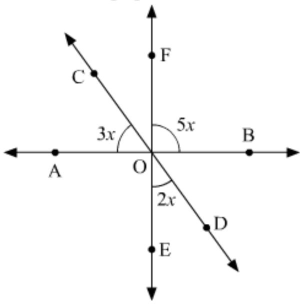
Also, *y* and *x* form a linear pair.
So, $y + 155° = 180° \Rightarrow y = 180 - 155 \Rightarrow y = 25°$

Hence, the values are $x=155°$, $y=25°$ and $z=155°$.

## Lines and Angles Ex 8.3 Q4

**Answer :**

In the following figure we have to find the value of *x*




In the figure AB, CD and EF are lines; therefore, angles COF and EOD are vertically opposite angles.
Therefore,

$\angle COF = 2x$

Since, AB is a straight line, so

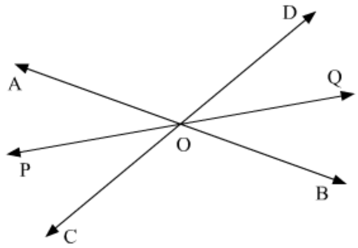
$$\angle AOC + \angle COF + \angle BOF = 180$$
$$\Rightarrow 3x + 2x + 5x = 180$$
$$\Rightarrow 10x = 180$$
$$\Rightarrow x = 18^{\circ}$$

Hence, $\boxed{x = 18^{\circ}}$.

## Lines and Angles Ex 8.3 Q5

**Answer :**

Let *AB* and *CD* intersect at a point *O*




Also, let us draw the bisectors *OP* and *OQ* of $\angle AOC$ and $\angle DOB$ .

Therefore,

$\angle AOP = \angle POC$

And

$\angle BOQ = \angle DOQ \qquad \text{(i)}$

We know that, $\angle AOC$ and $\angle DOB$ are vertically opposite angles. Therefore, these must be equal, that is:

$\angle AOC = \angle DOB \qquad \text{(ii)}$

We know that:

$\angle AOP + \angle AOD + \angle DOQ + \angle POC + \angle BOC + \angle BOQ = 360^0$

$\angle AOP + \angle AOD + \angle DOQ + \angle POC + \angle BOC + \angle BOQ = 360^0$

From (i)

$2\angle AOP + \angle AOD + 2\angle DOQ + \angle BOC = 360^0$

From (ii)

$$2\angle AOP + 2\angle AOD + 2\angle DOQ = 360^0$$
$$2(\angle AOP + \angle AOD + \angle DOQ) = 360^0$$
$$\angle AOP + \angle AOD + \angle DOQ = \frac{360^0}{2}$$
$$\angle AOP + \angle AOD + \angle DOQ = 180^0$$

This means, $\angle AOP$ , $\angle AOD$ and $\angle DOQ$ form a linear pair.

Hence, *POQ* forms a straight line.

Thus, we can say that the bisectors of a pair of vertically opposite angles are in the same straight line.

*********** END **********