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°⇒z=180-25 ⇒z=155°

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

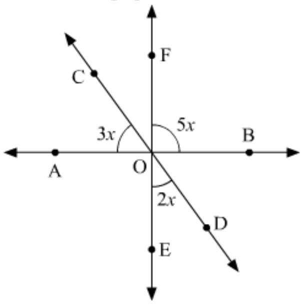
Also, *y* and *x* form a linear pair.
So, y+ 155°=180°⇒y=180-155 ⇒y=25°

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

$\angle AOC + \angle COF + \angle BOF = 180$

$\Rightarrow 3x + 2x + 5x = 180$

$\Rightarrow 10x = 180$

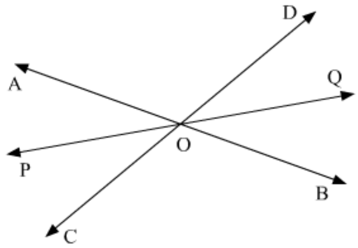
$\Rightarrow x = 18^\circ$

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 **********