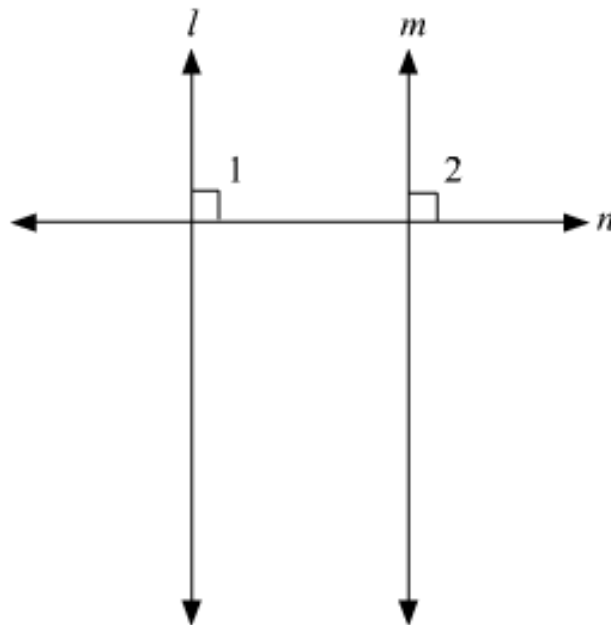Lines and Angles Ex 8.4 Q14

Answer :

The figure can be drawn as follows:

Here, $l \perp n$ and $m \perp n$.

We need to find the relation between lines l and m

It is given that $l \perp n$, therefore,

$\angle 1 = 90^0$ (i)

Similarly, we have $m \perp n$, therefore,

$\angle 2 = 90^0$ (ii)

From (i) and (ii), we get:

$\angle 1 = \angle 2$

But these are the pair of corresponding angles.

Theorem states: If a transversal intersects two lines in such a way that a pair of corresponding angles is equal, then the two lines are parallel.
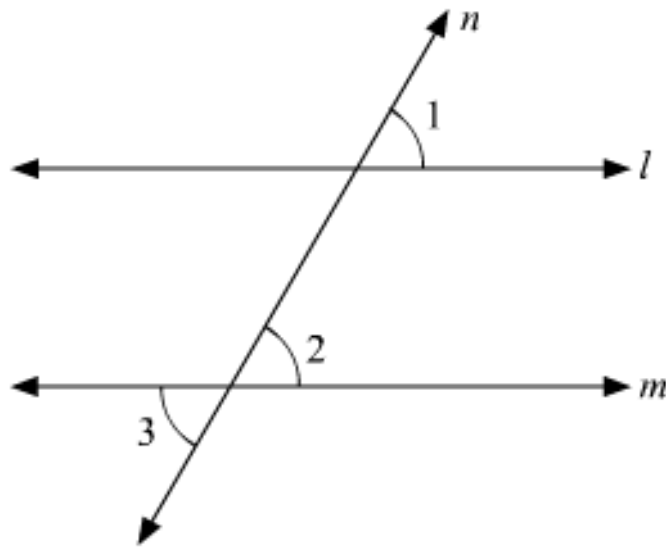
Thus, we can say that $l \parallel m$.

Hence, the lines are parallel to each other.

Lines and Angles Ex 8.4 Q15

Answer :

The figure is given as follow:

It is given that $\angle 1 = 60^0$

Also,

$$\angle 2 = \frac{2}{3}(90^0)$$

$$\angle 2 = 2(30^0)$$
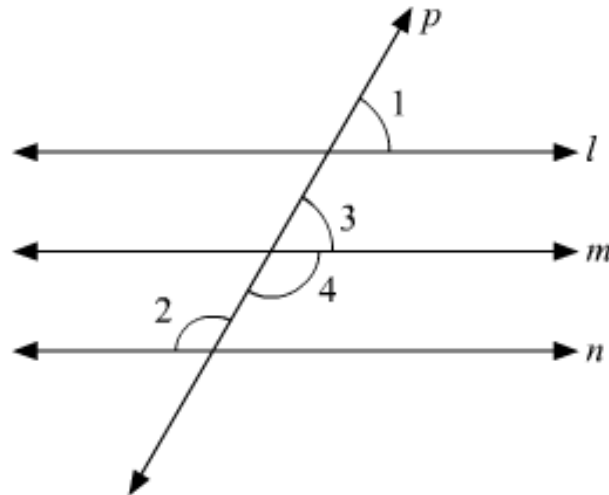
$$\angle 2 = 60^0$$

Thus we have $\angle 1 = \angle 2$

But these are the pair of corresponding angles.

Thus $l \parallel m$

Hence proved.

Lines and Angles Ex 8.4 Q16

Answer :

The given figure is as follows:

We have $l \parallel m \parallel n$ and $\angle 1 = 60^0$

Thus, we get $\angle 1$ and $\angle 3$ as corresponding angles.

Therefore,

$\angle 3 = \angle 1$

$\angle 3 = 60^0$ (i)

We have $\angle 3$ and $\angle 4$ forming a linear pair.

Therefore, they must be supplementary. That is;

$\angle 3 + \angle 4 = 180^0$

From equation (i):

$60^0 + \angle 4 = 180^0$

$\angle 4 = 180^0 - 60^0$

$\angle 4 = 120^0$ (ii)

We have $m \parallel n$

Thus, we get $\angle 2$ and $\angle 4$ as alternate interior opposite angles.

Therefore, these must be equal. That is,

$\angle 2 = \angle 4$

From equation (ii), we get :

$\angle 2 = \boxed{120^0}$

Hence the required value for $\angle 2$ is $\boxed{120^0}$.

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