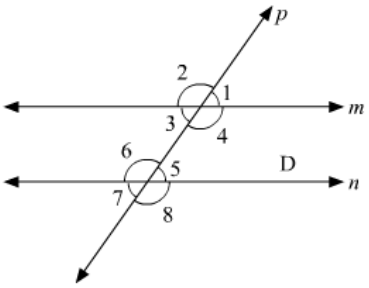
Lines and Angles Ex 8.4 Q20

Answer :

The figure is given as follows:



It is given that p is a transversal to lines m and n .Also,

$\angle 2 = 120^0$ and $\angle 5 = 60^0$.

We need to prove that $m \| n$

We have $\angle 2 = 120^0$.

Also, $\angle 2$ and $\angle 4$ are vertically opposite angles, thus, these two must be equal. That is,

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

Also, $\angle 5 = 60^0$.

Adding this equation to (i), we get :

$\angle 4 + \angle 5 = 120^0 + 60^0$

$\angle 4 + \angle 5 = 180^0$

But these are the consecutive interior angles.

Theorem states: If a transversal intersects two lines in such a way that a pair of consecutive interior angles is supplementary, then the two lines are parallel.

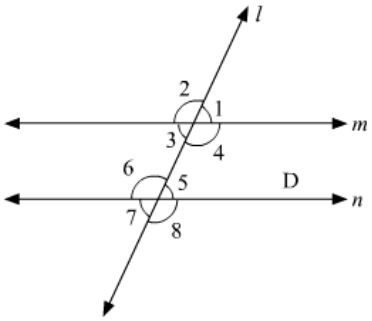
Thus, $m \| n$.

Hence, the lines are parallel to each other.

Lines and Angles Ex 8.4 Q21

Answer :

The figure is given as follows:



It is given that l is a transversal to lines m and n. Also,

$\angle 4 = 110^0$ and $\angle 7 = 65^0$.

We need check whether $m \| n$ or not.

We have $\angle 7 = 65^0$.

Also, $\angle 7$ and $\angle 5$ are vertically opposite angles, thus, these two must be equal. That is,

$\angle 5 = 65^0$ (i)

Also, $\angle 4 = 110^0$.

Adding this equation to (i), we get:

$\angle 4 + \angle 5 = 110^0 + 65^0$

$\angle 4 + \angle 5 = 175^0$

But these are the consecutive interior angles which are not supplementary.

Theorem states: If a transversal intersects two lines in such a way that a pair of consecutive interior angles is supplementary, then the two lines are parallel.

Thus, m is not parallel to n.

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