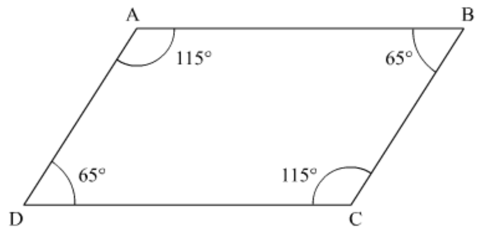
Lines and Angles Ex 8.4 Q22

Answer :

The figure is given as follows:



We have $\angle BCD = 115^0$ and $\angle ADC = 65^0$.

Clearly,

$$\angle BCD + \angle ADC = 115^0 + 65^0$$
$$\angle BCD + \angle ADC = 180^0$$

These are the pair of 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, $\boxed{AD \parallel BC}$.

Similarly, we have $\angle DAB = 115^0$ and $\angle ADC = 65^0$.

Clearly,

$$\angle DAB + \angle ADC = 115^0 + 65^0$$
$$\angle DAB + \angle ADC = 180^0$$

These are the pair of 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, $\boxed{AB \parallel CD}$.

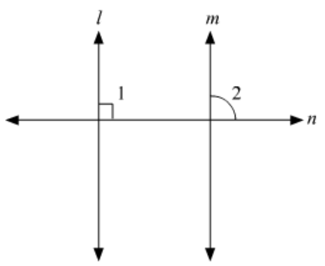
Hence the lines which are parallel are as follows:

$\boxed{AD \parallel BC}$ and $\boxed{AB \parallel CD}$.

Lines and Angles Ex 8.4 Q23

Answer :

The figure can be drawn as follows:



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

We need to prove that $n \perp m$.

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

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

We have $l \parallel m$, thus, $\angle 1$ and $\angle 2$ are the corresponding angles. Therefore,these must be equal. That is,

$\angle 1 = \angle 2$

From equation (i), we get:

$\angle 2 = 90^0$

Therefore, $\boxed{n \perp m}$.

Hence proved.

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