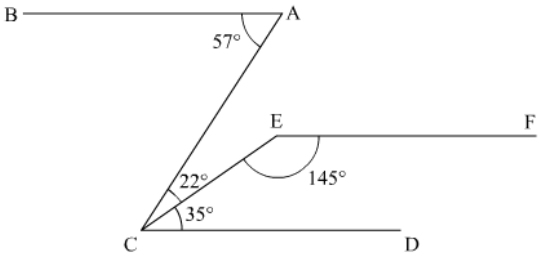
Lines and Angles Ex 8.4 Q4

Answer :

The figure is given as follows:



We need to prove that $AB \parallel EF$.

It is given that $\angle BAC = 57^0$ and

$\angle ACD = \angle ACE + \angle ECD$

$\angle ACD = 22^\circ + 35^\circ$

$\angle ACD = 57^\circ$

Thus,

$\angle ACD = \angle BAC$

But these are the pair of alternate interior opposite angles.

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

Therefore,

$AB \parallel CD$ (i)

It is given that $\angle FEC = 145^0$ and $\angle ECD = 35^0$

Thus,

$\angle FEC + \angle ECD = 145^0 + 35^0$

$\angle FEC + \angle ECD = 180^0$

But these are the pair of consecutive interior opposite 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.

Therefore,

$CD \parallel EF$ (ii)

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

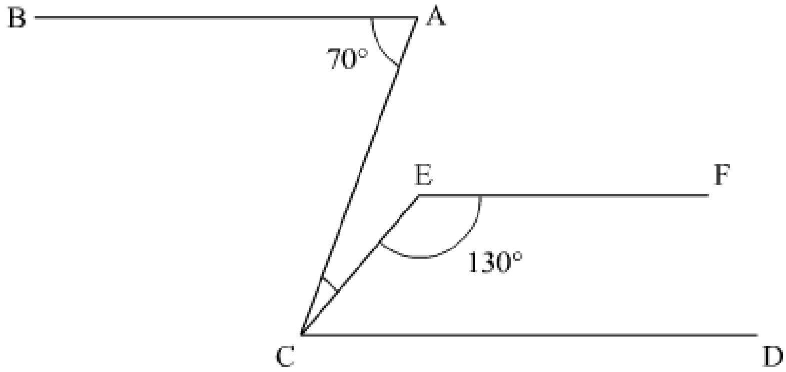
$AB \parallel EF$

Hence proved $\boxed{AB \parallel EF}$.

Lines and Angles Ex 8.4 Q5

Answer :

The figure is given as follows:



It is given that AB || CD and CD || EF

Thus, $\angle BAC$ and $\angle ACD$ are alternate interior opposite angles.

Therefore,

$$\angle ACD = \angle BAC$$
$$\angle ACD = 70^0 \qquad \text{(i)}$$

Also, we have $CD \parallel EF$

$$\angle FEC + \angle ECD = 180^0$$
$$130^0 + \angle ECD = 180^0$$
$$\angle ECD = 180^0 - 130^0$$
$$\angle ECD = 50^0 \qquad \text{(ii)}$$

From the figure:

$$\angle ACE = \angle ACD - \angle ECD$$

From equations (i) and (ii):

$$\angle ACE = 70^0 - 50^0$$
$$\angle ACE = \boxed{20^0}$$

Hence, the required value for $\angle ACE$ is $\boxed{20^0}$.

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