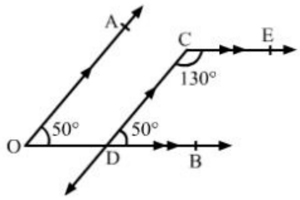
Exercise 14A



Q8

Answer :

Given : AB ∥ CD

$\angle ABO = 50^\circ$

$\angle CDO = 40^\circ$

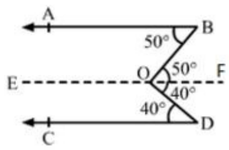
Construction : Through O, draw EOF ∥ AB.

$\angle ABO = \angle BOF = 50^\circ$ (alternate angles, when AB ∥ EF and OB is a transversal)

$\angle FOD = \angle ODC = 40^\circ$ (alternate angles, when CD ∥ EF and OD is a transversal)

$\angle BOD = \angle BOF + \angle FOD$

$\angle BOD = 50^\circ + 40^\circ = 90^\circ$



Q9

Answer :

Given : AB ∥ CD

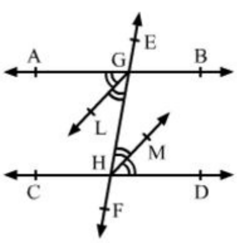
GL and HM are angle bisectors of $\angle AGH$ and $\angle GHD$, respectively.

$\angle AGH = \angle GHD$ (alternate angles)

or $\frac{1}{2} \angle AGH = \frac{1}{2} \angle GHD$

or $\angle LGH = \angle GHM$ (given)

Therefore, GL ∥ HM as we know that if the angles of any pair of alternate interior angles are equal, then the lines are parallel.



Q10

Answer :

Given : AB $\parallel$ CD

$\angle ABE = 120^\circ$

$\angle ECD = 100^\circ$

$\angle BEC = x^\circ$

Construction : FEG $\parallel$ AB

Now, since $AB \parallel FEG$ and $AB \parallel CD$, $FEG \parallel CD$

$\therefore EFG \parallel AB \parallel CD$

$\angle ABE = \angle BEG = 120^\circ$ (alternate angles)

or $x^\circ + y^\circ = 120^\circ$ ....(i)

$\angle DCE = \angle CEF = 100^\circ$ (alternate angles)

or $x^\circ + z^\circ = 100^\circ$ .....(ii)

Also, $x^\circ + y^\circ + z^\circ = 180^\circ$ (FEG is a straight line) ...(iii)

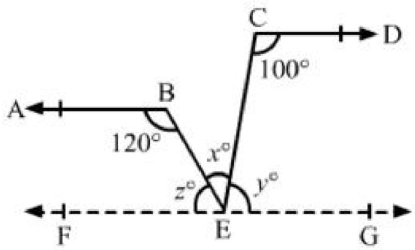
Adding (i) and (ii) :

$2x^\circ + y^\circ + z^\circ = 220^\circ$

or, $x^\circ + 180^\circ = 220^\circ$ (substituting (iii))

$x^\circ = 40^\circ$

$\therefore x = 40$



Q11

Answer :

Given : AB $\parallel$ CD

AD $\parallel$ BC

$\angle 1 + \angle 2 = 180^\circ$ (AB $\parallel$ CD and AD is the transversal) ...(i)

$\angle 2 + \angle 3 = 180^\circ$ (AD $\parallel$ BC and AB is the transversal) ...(ii)

From (i) and (ii) :

$\angle 1 + \angle 2 = 180^\circ = \angle 2 + \angle 3$

$\angle 1 = \angle 3$

$\angle ADC = \angle ABC$

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