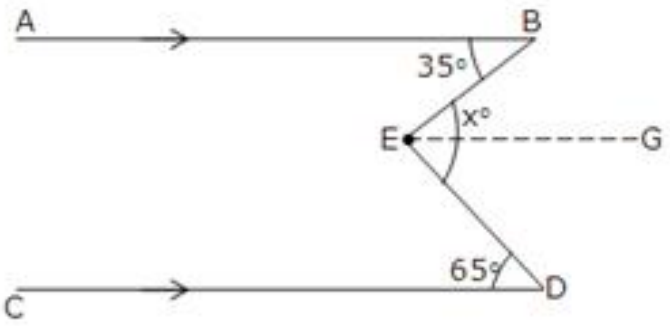
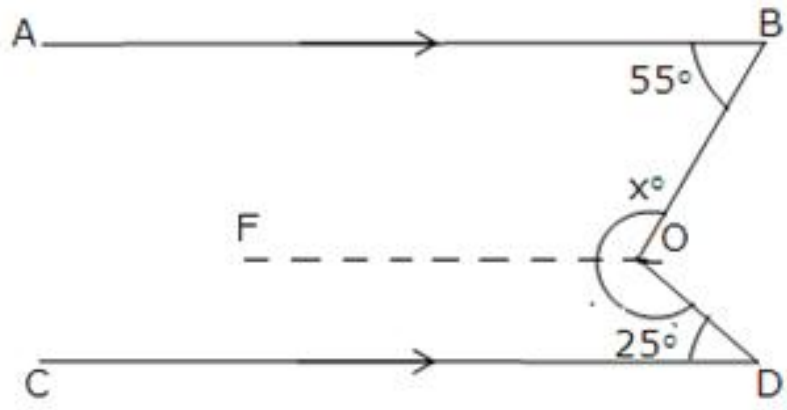
Exercise 4C

Question 4:
(i) Through E draw EG || CD. Now since EG||CD and ED is a transversal.

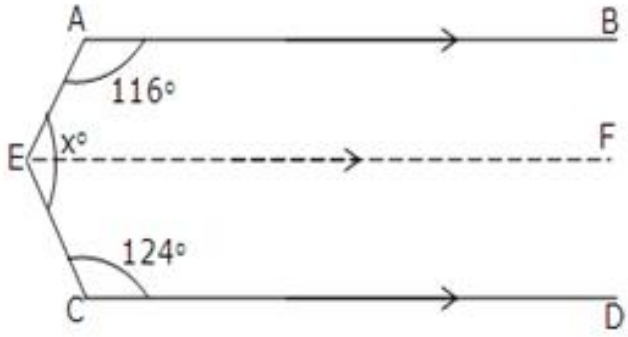



So, ∠GED = ∠EDC = $65^o$ [Alternate interior angles]
Since EG || CD and AB || CD,
EG||AB and EB is transversal.
So, ∠BEG = ∠ABE = $35^o$ [Alternate interior angles]
So, ∠DEB = $x^o$
⇒ ∠BEG + ∠GED = $35^o + 65^o = 100^o$.
Hence, x = 100.
(ii) Through O draw OF||CD.




Now since OF || CD and OD is transversal.
∠CDO + ∠FOD = $180^o$
[sum of consecutive interior angles is $180^o$]
⇒ $25^o$ + ∠FOD = $180^o$
⇒ ∠FOD = $180^o - 25^o = 155^o$
As OF || CD and AB || CD [Given]
Thus, OF || AB and OB is a transversal.
So, ∠ABO + ∠FOB = $180^o$ [sum of consecutive interior angles is $180^o$]
⇒ $55^o$ + ∠FOB = $180^o$
⇒ ∠FOB = $180^o - 55^o = 125^o$
Now, $x^o$ = ∠FOB + ∠FOD = $125^o + 155^o = 280^o$.
Hence, x = 280.

(iii) Through E, draw EF || CD.




Now since EF || CD and EC is transversal.
$\angle FEC + \angle ECD = 180^o$
[sum of consecutive interior angles is $180^o$]
$\Rightarrow \angle FEC + 124^o = 180^o$
$\Rightarrow \angle FEC = 180^o - 124^o = 56^o$
Since EF || CD and AB ||CD
So, EF || AB and AE is a trasveral.
So, $\angle BAE + \angle FEA = 180^o$
[sum of consecutive interior angles is $180^o$]
$\therefore 116^o + \angle FEA = 180^o$
$\Rightarrow \angle FEA = 180^o - 116^o = 64^o$
Thus, $x^o = \angle FEA + \angle FEC$
$= 64^o + 56^o = 120^o$.
Hence, x = 120.

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