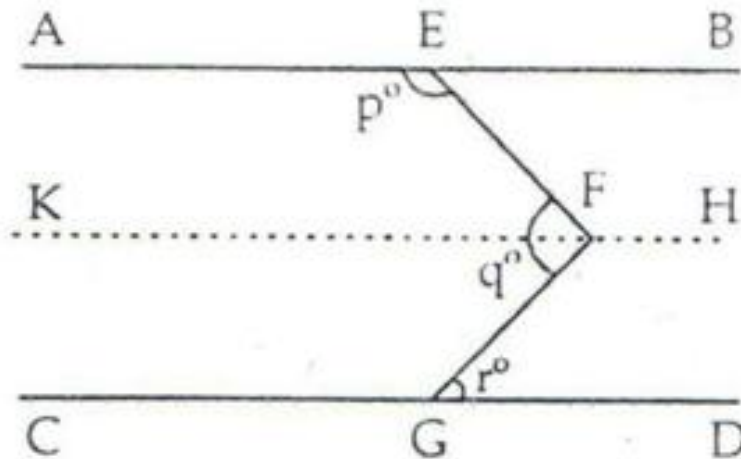




Exercise 4C

Question 9:

Through F, draw $KH \parallel AB \parallel CD$



Now, $KF \parallel CD$ and FG is a transversal.

$$\Rightarrow \angle KFG = \angle FGD = r^\circ \dots (i)$$

[alternate angles]

Again $AE \parallel KF$, and EF is a transversal.

$$\text{So, } \angle AEF + \angle KFE = 180^\circ$$

$$\angle KFE = 180^\circ - p^\circ \dots (ii)$$

Adding (i) and (ii) we get,

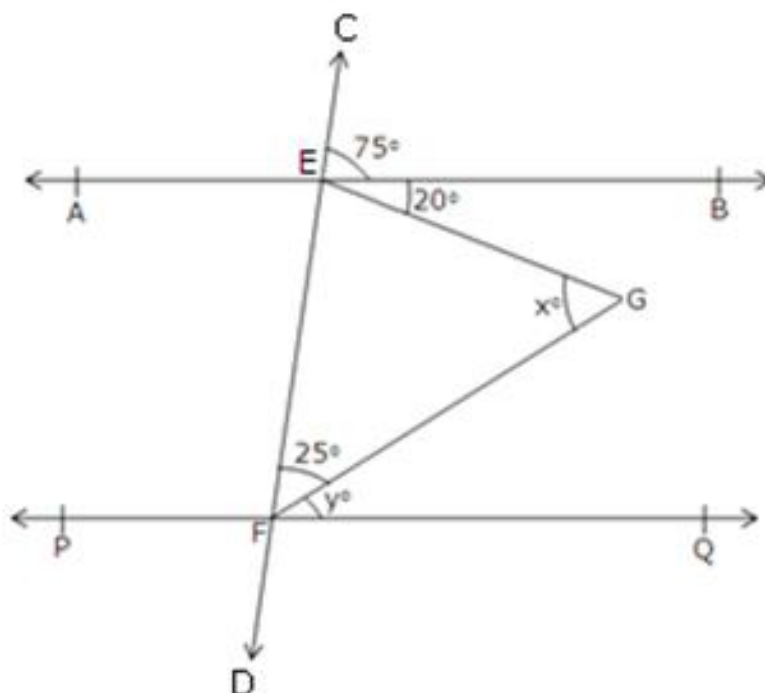
$$\angle KFG + \angle KFE = 180 - p + r$$

$$\Rightarrow \angle EFG = 180 - p + r$$

$$\Rightarrow q = 180 - p + r$$

$$\text{i.e., } p + q - r = 180$$

Question 10:



Since $AB \parallel PQ$ and EF is a transversal.

So, $\angle CEB = \angle EFQ$ [Corresponding angles]

$$\Rightarrow \angle EFQ = 75^\circ$$

$$\Rightarrow \angle EFG + \angle GFQ = 75^\circ$$

$$\Rightarrow 25^\circ + y^\circ = 75^\circ$$

$$\Rightarrow y = 75 - 25 = 50$$

Also, $\angle BEF + \angle EFQ = 180^\circ$ [sum of consecutive interior angles is 180°]

$$\angle BEF = 180^\circ - \angle EFQ$$

$$= 180^\circ - 75^\circ$$

$$\angle BEF = 105^\circ$$

$$\therefore \angle FEG + \angle GEB = \angle BEF = 105^\circ$$

$$\Rightarrow \angle FEG = 105^\circ - \angle GEB = 105^\circ - 20^\circ = 85^\circ$$

In $\triangle EFG$ we have,

$$x^\circ + 25^\circ + \angle FEG = 180^\circ$$

$$\Rightarrow x^\circ + 25^\circ + 85^\circ = 180^\circ$$

$$\Rightarrow x^\circ + 110^\circ = 180^\circ$$

$$\Rightarrow x^\circ = 180^\circ - 110^\circ$$

$$\Rightarrow x^\circ = 70^\circ$$

Hence, $x = 70$.

***** END *****