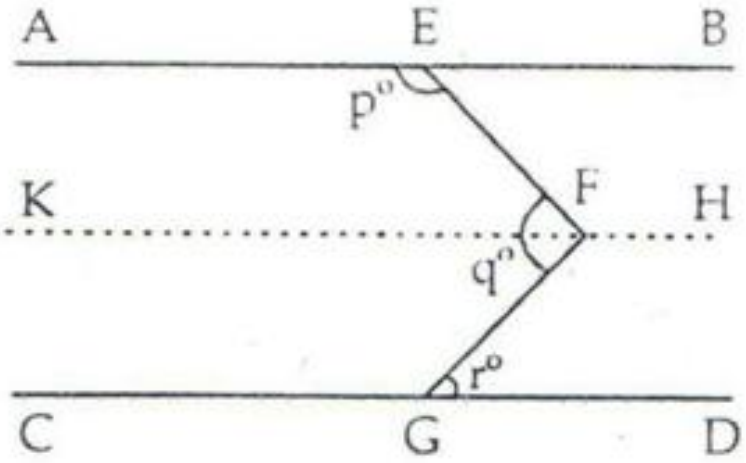
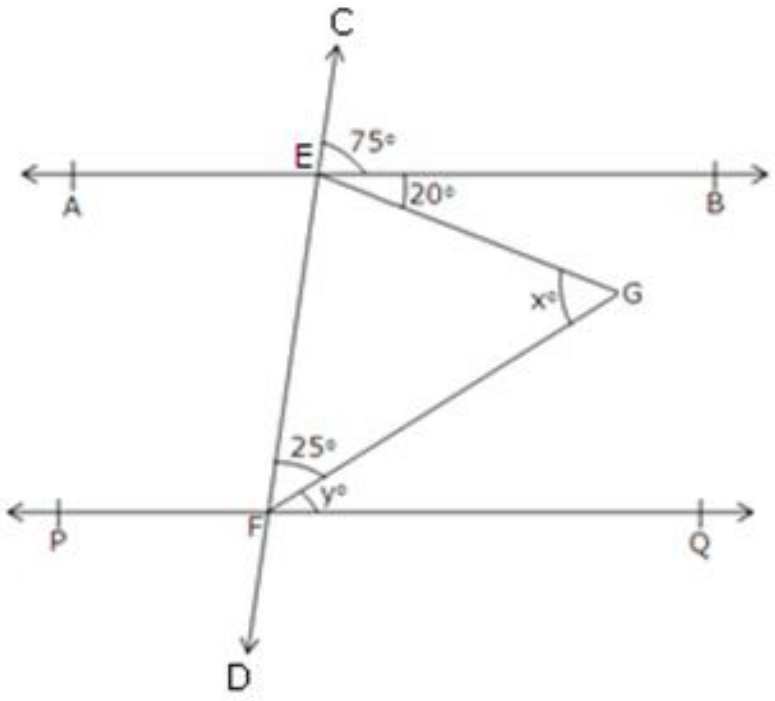
Exercise 4C

Question 9:
Through F, draw KH || AB || CD



Now, KF || CD and FG is a transversal.
⇒ ∠KFG = ∠FGD = r^o .... (i)
[alternate angles]
Again AE || KF, and EF is a transversal.
So, ∠AEF + ∠KFE = 180^o
∠KFE = 180^o - p^o .... (ii)
Adding (i) and (ii) we get,
∠KFG + ∠KFE = 180 - p + r
⇒ ∠EFG = 180 - p + r
⇒ q = 180 - p + r
i.e., p + q - r = 180

Question 10:



Since AB || PQ and EF is a transversal.
So, $\angle CEB = \angle EFQ$ [Corresponding angles]
$\Rightarrow \angle EFQ = 75^O$
$\Rightarrow \angle EFG + \angle GFQ = 75^O$
$\Rightarrow 25^O + y^O = 75^O$
$\Rightarrow y = 75 - 25 = 50$
Also, $\angle BEF + \angle EFQ = 180^O$ [sum of consecutive interior angles is 180^O]
$\angle BEF = 180^O - \angle EFQ$
$= 180^O - 75^O$
$\angle BEF = 105^O$
$\therefore \angle FEG + \angle GEB = \angle BEF = 105^O$
$\Rightarrow \angle FEG = 105^O - \angle GEB = 105^O - 20^O = 85^O$
In ΔEFG we have,
$x^O + 25^O + \angle FEG = 180^O$

$$\Rightarrow x°+25°+85°=180°$$
$$\Rightarrow \quad x°+110°=180°$$
$$\Rightarrow \qquad x°=180°-110°$$
$$\Rightarrow \qquad x°=70°$$

Hence, x = 70.

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