



#### Exercise 4C

Question 11:

Since  $AB \parallel CD$  and  $AC$  is a transversal.

So,  $\angle BAC + \angle ACD = 180^\circ$  [sum of consecutive interior angles is  $180^\circ$ ]

$$\Rightarrow \angle ACD = 180^\circ - \angle BAC$$

$$= 180^\circ - 75^\circ = 105^\circ$$

$$\Rightarrow \angle ECF = \angle ACD \quad [\text{Vertically opposite angles}]$$

$$\angle ECF = 105^\circ$$

Now in  $\triangle CEF$ ,

$$\angle ECF + \angle CEF + \angle EFC = 180^\circ$$

$$\Rightarrow 105^\circ + x^\circ + 30^\circ = 180^\circ$$

$$\Rightarrow x = 180 - 30 - 105 = 45$$

Hence,  $x = 45$ .

Question 12:

Since  $AB \parallel CD$  and  $PQ$  a transversal.

So,  $\angle PEF = \angle EGH$  [Corresponding angles]

$$\Rightarrow \angle EGH = 85^\circ$$

$\angle EGH$  and  $\angle QGH$  form a linear pair.

$$\text{So, } \angle EGH + \angle QGH = 180^\circ$$

$$\Rightarrow \angle QGH = 180^\circ - 85^\circ = 95^\circ$$

$$\text{Similarly, } \angle GHQ + 115^\circ = 180^\circ$$

$$\Rightarrow \angle GHQ = 180^\circ - 115^\circ = 65^\circ$$

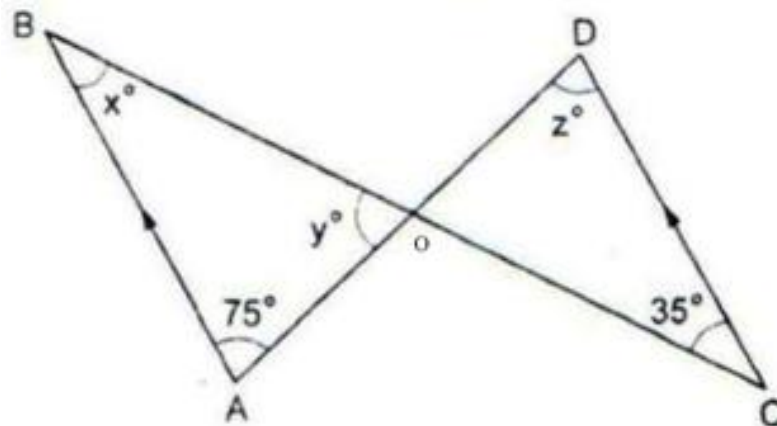
In  $\triangle GHQ$ , we have,

$$x^\circ + 65^\circ + 95^\circ = 180^\circ$$

$$\Rightarrow x = 180 - 65 - 95 = 180 - 160$$

$$\therefore x = 20$$

Question 13:



Since  $AB \parallel CD$  and  $BC$  is a transversal.

$$\text{So, } \angle ABC = \angle BCD$$

$$\Rightarrow x = 35$$

Also,  $AB \parallel CD$  and  $AD$  is a transversal.

$$\text{So, } \angle BAD = \angle ADC$$

$$\Rightarrow z = 75$$

In  $\triangle ABO$ , we have,

$$\angle AOB + \angle BAO + \angle BOA = 180^\circ$$

$$\Rightarrow x^{\circ} + 75^{\circ} + y^{\circ} = 180^{\circ}$$

$$\Rightarrow 35 + 75 + y = 180$$

$$\Rightarrow y = 180 - 110 = 70$$

$$\therefore x = 35, y = 70 \text{ and } z = 75.$$

\*\*\*\*\*END\*\*\*\*\*