



Properties of Triangles Ex 15.3 Q9

**Answer :**

We know that the sum of all angles of a triangle is  $180^\circ$ .

Therefore, for the given  $\triangle FCB$ , we can say that :

$$\angle FCB + \angle CBF + \angle BFC = 180^\circ$$

$$\Rightarrow 50^\circ + \angle CBF + 90^\circ = 180^\circ$$

Or,

$$\angle CBF = 180^\circ - 50^\circ - 90^\circ = 40^\circ \dots (i)$$

Using the above rule for  $\triangle ABD$ , we can say that :

$$\angle ABD + \angle BDA + \angle BAD = 180^\circ$$

$$\Rightarrow \angle BAD = 180^\circ - 90^\circ - 40^\circ = 50^\circ \text{ [From (i)]}$$

Properties of Triangles Ex 15.3 Q10

**Answer :**

Here,

$$\angle AED + 120^\circ = 180^\circ \text{ (Linear pair)}$$

$$\Rightarrow \angle AED = 180^\circ - 120^\circ = 60^\circ$$

We know that the sum of all angles of a triangle is  $180^\circ$ .

Therefore, for  $\triangle ADE$ , we can say that :

$$\angle ADE + \angle AED + \angle DAE = 180^\circ$$

$$\Rightarrow 60^\circ + \angle ADE + 30^\circ = 180^\circ$$

Or,

$$\angle ADE = 180^\circ - 60^\circ - 30^\circ = 90^\circ$$

From the given figure, we can also say that :

$$\angle FDC + 90^\circ = 180^\circ \text{ (Linear pair)}$$

$$\Rightarrow \angle FDC = 180^\circ - 90^\circ = 90^\circ$$

Using the above rule for  $\triangle CDF$ , we can say that :

$$\angle CDF + \angle DCF + \angle DFC = 180^\circ$$

$$\Rightarrow 90^\circ + \angle DCF + 60^\circ = 180^\circ$$

$$\angle DCF = 180^\circ - 60^\circ - 90^\circ = 30^\circ$$

Also,

$$\angle DCF + x = 180^\circ \text{ (Linear pair)}$$

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

Or,

$$x = 180^\circ - 30^\circ = 150^\circ$$

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