



Properties of Triangles Ex 15.3 Q16

Answer :

(i) From the given figure, we can say that :

$$\angle ACD + \angle ACB = 180^\circ \text{ (Linear pair)}$$

Or,

$$\angle ACB = 180^\circ - 112^\circ = 68^\circ \quad \dots (i)$$

We can also say that :

$$\angle BAE + \angle BAC = 180^\circ \text{ (Linear pair)}$$

Or,

$$\angle BAC = 180^\circ - 120^\circ = 60^\circ \quad \dots (ii)$$

We know that the sum of all angles of a triangle is 180° .

Therefore, for $\triangle ABC$:

$$x + \angle BAC + \angle ACB = 180^\circ$$

$$\Rightarrow x = 180^\circ - 60^\circ - 68^\circ = 52^\circ$$

$$= x = 52^\circ$$

(ii) From the given figure, we can say that :

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

$$\Rightarrow \angle ABC = 60^\circ$$

We can also say that :

$$\angle ACB + 110^\circ = 180^\circ \text{ (Linear pair)}$$

$$\Rightarrow \angle ACB = 70^\circ$$

We know that the sum of all angles of a triangle is 180° .

Therefore, for $\triangle ABC$:

$$x + \angle ABC + \angle ACB = 180^\circ$$

$$= x = 50^\circ$$

(iii) From the given figure, we can see that :

$$\angle BAD = \angle ADC = 52^\circ \text{ (Alternate angles)}$$

We know that the sum of all the angles of a triangle is 180° .

Therefore, for $\triangle DEC$:

$$x + 40^\circ + 52^\circ = 180^\circ$$

$$= x = 88^\circ$$

(iv) In the given figure, we have a quadrilateral whose sum of all angles is 360° .

Thus,

$$35^\circ + 45^\circ + 50^\circ + \text{reflex } \angle ADC = 360^\circ$$

Or,

$$\text{reflex } \angle ADC = 230^\circ$$

$$230^\circ + x = 360^\circ \text{ (A complete angle)}$$

$$= x = 130^\circ$$

***** END *****