Properties of Triangles Ex 15.3 Q9

Answer :

We know that the sum of all angles of a triangle is 180°.
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,
$\angle CBF = 180^\circ - 50^\circ - 90^\circ = 40^\circ \ \ldots (i)$
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,
$\angle AED + 120^\circ = 180^\circ \quad (\text{Linear pair})$
$\Rightarrow \angle AED = 180^\circ - 120^\circ = 60^\circ$
We know that the sum of all angles of a triangle is 180°.
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 :
$\angle FDC + 90^\circ = 180^\circ \quad (\text{Linear pair})$
$\Rightarrow\ \angle FDC = 180^\circ - 90^\circ = 90^\circ$
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,
$\angle DCF + x = 180^\circ \quad (\text{Linear pair})$
$\Rightarrow 30^\circ + x = 180^\circ$
Or,
$x = 180^\circ - 30^\circ = 150^\circ$

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