Properties of Triangles Ex 15.3 Q6

Answer :

In $\triangle ABC$, $\angle BAC$ and $\angle EAF$ are vertically opposite angles.
Hence, we can say that :
$\angle BAC = \angle EAF = 45^\circ$
Considering the exterior angle property, we can say that :
$\angle BAC + \angle ABC = \angle ACD = 105^\circ$
$\Rightarrow \angle ABC = 105^\circ - 45^\circ = 60^\circ$
Because of the angle sum property of the triangle, we can say that :
$\angle ABC + \angle ACB + \angle BAC = 180^\circ$
$\angle ACB = 75^\circ$
Therefore, the angles are 45°, 60° and 75°.

Properties of Triangles Ex 15.3 Q7

Answer :

In the given triangle, the angles are in the ratio $3 : 2 : 1$.
Let the angles of the triangle be $3x$, $2x$ and x.
Because of the angle sum property of the triangle, we can say that :
$3x + 2x + x = 180^\circ$
$\Rightarrow 6x = 180^\circ$
Or,
$x = 30^\circ \quad \ldots (i)$
Also,
$\angle ACB + \angle ACE + \angle ECD = 180^\circ$
$x + 90^\circ + \angle ECD = 180^\circ \ (\angle ACE = 90^\circ)$
$\angle ECD = 60^\circ$ [From (i)]

Properties of Triangles Ex 15.3 Q8

Answer :

Here,
Internal angle at A + External angle at $A = 180^\circ$
Internal angle at $A + 103^\circ = 180^\circ$
Internal angle at $A = 77^\circ$
Internal angle at B + External angle at $B = 180^\circ$
Internal angle at $B + 74^\circ = 180^\circ$
Internal angle at $B = 106^\circ$
Sum of internal angles at A and $B = 77^\circ + 106^\circ = 183^\circ$
It means that the sum of internal angles at A and B is greater than 180°, which cannot be possible.

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