Properties of Triangles Ex 15.2 Q10

Answer :

(i) We know that the sum of all the three angles of a triangle is equal to 180°.
Now, let us find the sum of 63°, 37° and 80°.
$63^\circ + 37^\circ + 80^\circ = 180^\circ$
The sum of 63°, 37° and 80° is equal to 180°.
Hence, we can say that the given angles can be those of a triangle.

(ii) We know that the sum of all the three angles of a triangle is equal to 180°.
Now, let us find the sum of 45°, 61° and 73°.
$45^\circ + 61^\circ + 73^\circ = 179^\circ$
The sum of 45°, 61° and 73° is **not** equal to 180°.
Hence, we can say that the given angles cannot be those of a triangle.

(iii) We know that the sum of all the three angles of a triangle is equal to 180°.
Now, let us find the sum of 59°, 72° and 61°.
$59^\circ + 72^\circ + 61^\circ = 192^\circ$
The sum of 59°, 72° and 61° is **not** equal to 180°.
Hence, we can say that the given angles cannot be those of a triangle.

(iv) We know that the sum of all the three angles of a triangle is equal to 180°.
Now, let us find the sum of 45°, 45° and 90°.
$45^\circ + 45^\circ + 90^\circ = 180^\circ$
The sum of 45°, 45° and 90° is equal to 180°.
Hence, we can say that the given angles can be those of a triangle.

(v) We know the sum of all the three angles of a traingle is equal to 180°.
Now, let us find the sum of 30°, 20° and 125°.
$30^\circ + 20^\circ + 125^\circ = 175^\circ$
The sum of 30°, 20° and 125° is **not** equal to 180°.
Hence, we can say that the given angles cannot be those of a triangle.

Therefore, we can conclude that in (i) and (iv), the angles can be those of a triangle.

Properties of Triangles Ex 15.2 Q11

Answer :

If the angles of the given triangle are in the ratio $3:4:5$, then let us take the smallest angle as $3x$.
This means that the second angle will be $4x$ and the third angle will be $5x$.
We know that the sum of all the three angles of a triangle is equal to 180°.
$\therefore\ 3x + 4x + 5x = 180^\circ$
$\Rightarrow 12x = 180^\circ$
$\Rightarrow\ x = \frac{180^\circ}{12}$
$\Rightarrow x = 15^\circ$
Now, $3x = 3 \times 15^\circ = 45^\circ$
Therefore, we can conclude that the smallest angle is 45°.

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