

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 $180\,^\circ$.

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° .

$$3x + 4x + 5x = 180^{\circ}$$

$$\Rightarrow 12x = 180^{\circ}$$

$$\Rightarrow x = \frac{180^{\circ}}{12}$$

$$\Rightarrow x = 15^{\circ}$$

Now, $3x = 3 \times 15^{\circ} = 45^{\circ}$

Therefore, we can conclude that the smallest angle is 45° .

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