Properties of Triangles Ex 15.2 Q7

Answer :

Let the two equal angles of the triangle be x.

Hence, the third angle of the triangle will be $\left(x+30^{\circ}\right)$.

Sum of all the three angle of a triangle $=180^{\circ}$

$\therefore x+x+\left(x+30^{\circ}\right)=180^{\circ}$

$\Rightarrow x+x+x+30^{\circ}=180^{\circ}$

$\Rightarrow 3x+30^{\circ}=180^{\circ}$

$\Rightarrow 3x=180^{\circ}-30^{\circ}$

$\Rightarrow 3x=150^{\circ}$

$\Rightarrow x=\frac{150^{\circ}}{3}$

$\Rightarrow \mathbf{x=50^{\circ}}$

$\left(x+30^{\circ}\right)=50^{\circ}+30^{\circ}$

$\Rightarrow \mathbf{\left(x+30^{\circ}\right)=80^{\circ}}$

Hence, we can conclude that the angles of the triangle are 50°, 50° and 80°.

Properties of Triangles Ex 15.2 Q8

Answer :

Let the three angles of the triangle be $\angle a$, $\angle b$ and $\angle c$.

Given : $\angle a=\angle b+\angle c$

Also, the sum of all the three angle of a triangle $=180^{\circ}$

Or, $\angle a+\angle b+\angle c=180^{\circ}$

$\Rightarrow \angle a+\angle a=180^{\circ} \quad \left(\because \angle a=\angle b+\angle c\right)$

$\Rightarrow 2\angle a=180^{\circ}$

$\Rightarrow \angle a=\frac{180^{\circ}}{2}$

$\Rightarrow \angle a=90^{\circ}$

Hence, we can conclude that the given triangle is a right angle triangle.

Properties of Triangles Ex 15.2 Q9

Answer :

Let the three angles of the triangle be $\angle a$, $\angle b$ and $\angle c$.

We know : $\angle a<\angle b+\angle c$ .....(i) (Given)

Which means : $\angle b<\angle a+\angle c$

Or, $\angle c<\angle a+\angle b$

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

Which means : $\angle a+\angle b+\angle c=180^{\circ}$

Or, $\angle b+\angle c=180^{\circ}-\angle a$

Putting the value of $\angle b+\angle c$ in equation (i) :

$\angle a<180^{\circ}-\angle a$

$\Rightarrow 2\angle a<180^{\circ}$

$\Rightarrow \angle a<90^{\circ}$

Similarly :

$\angle b<90^{\circ}$

$\angle c<90^{\circ}$

Hence, we can conclude that the given triangle is an acute triangle.

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