

MATHEMATICS

Class-7th

Chapter-6

The Triangle and
its properties

Solution of
Exercise-6.3

-By:-A.K.Jha

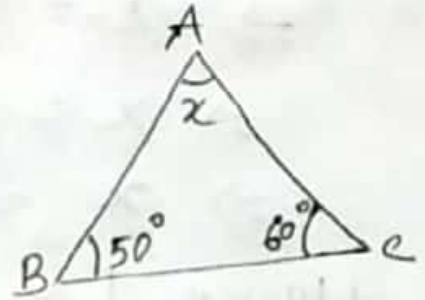
'Mathematics'

class - VII Ch - 06. Triangle and its properties.

Ex - 6.3

Q.1. Find the value of x :-

Sol. By angle-sum
(i) property of a triangle,



In $\triangle ABC$

$$\Rightarrow x + 50^\circ + 60^\circ = 180^\circ$$

$$\Rightarrow x + 110^\circ = 180^\circ$$

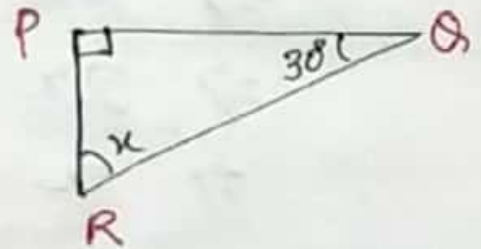
$$\Rightarrow x = (180 - 110)^\circ$$

$$= 70^\circ$$

Hence, $x = 70^\circ$ ✓

(ii) In $\triangle PQR$,

$$x + 30^\circ + 90^\circ = 180^\circ$$



By angle-sum property of triangle.

$$\Rightarrow x = 180^\circ - (30 + 90)^\circ$$

$$= 180^\circ - 120^\circ$$

$$= 60^\circ$$

Hence, $x = 60^\circ$ ✓

(iii) In $\triangle XYZ$,

$$x + 30^\circ + 110^\circ = 180^\circ$$

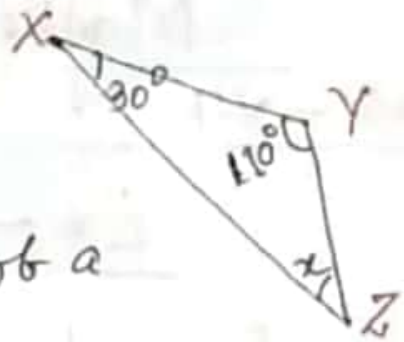
(By angle-sum property of a triangle.)

$$\Rightarrow x = 180^\circ - (30 + 110)^\circ$$

$$\Rightarrow x = 180^\circ - 140^\circ$$

$$\Rightarrow x = 40^\circ.$$

Hence, $x = 40^\circ$ ✓



(iv) In $\triangle ABC$,

$$x + x + 50 = 180^\circ$$

(By angle-sum property of a triangle.)

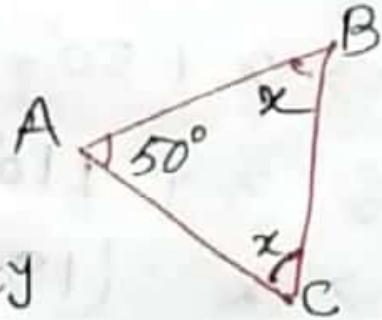
$$\Rightarrow 2x + 50^\circ = 180^\circ$$

$$\Rightarrow 2x = (180 - 50)^\circ$$

$$\Rightarrow 2x = 130^\circ$$

$$\Rightarrow x = \frac{130}{2} = 65^\circ$$

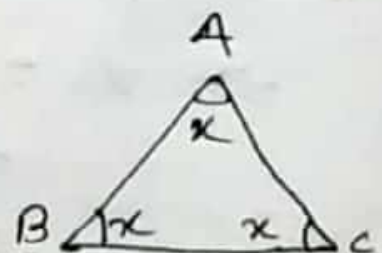
Hence, $x = 65^\circ$ ✓



(v) In $\triangle ABC$,

$$x + x + x = 180^\circ$$

(By angle-sum property of a triangle)



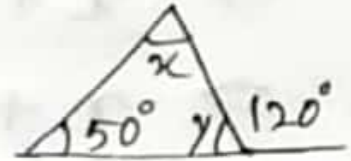
$$\Rightarrow 3x = 180^\circ$$

$$\Rightarrow x = \frac{180^\circ}{3} = 60^\circ$$

Hence, $x = 60^\circ$ ✓

Q. Find the value of x and y :-

(i) Sol. As we know that
in a triangle:



Sum of interior opp. angles = Exterior angle.

$$\Rightarrow x + 50^\circ = 120^\circ$$

$$\Rightarrow x = (120 - 50)^\circ$$

$$\Rightarrow x = 70^\circ$$

Now, in given triangle,

$$x^\circ + y^\circ + 50^\circ = 180^\circ$$

\Rightarrow By angle-sum property of a triangle,

$$\Rightarrow 70^\circ + y^\circ + 50^\circ = 180^\circ$$

$$\Rightarrow 120^\circ + y^\circ = 180^\circ$$

$$\Rightarrow y^\circ = 180^\circ - 120^\circ$$

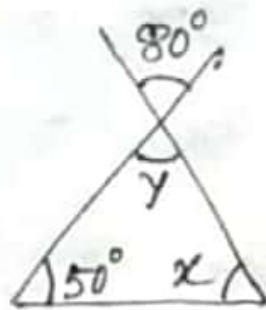
$$\Rightarrow y^\circ = 60^\circ$$

Hence, $y = 60^\circ$ And $x = 70^\circ$ ✓

(ii) Sol.

$$\gamma = 80^\circ \text{ (V.O.A.)}$$

$$\underline{x + \gamma + 50 = 180^\circ}$$



By angle-sum property of a triangle

$$\Rightarrow \underline{x + 80^\circ + 50^\circ = 180^\circ}$$

$$\Rightarrow x + 130^\circ = 180^\circ$$

$$\Rightarrow x = (180 - 130)^\circ$$

$$\Rightarrow x = 50^\circ$$

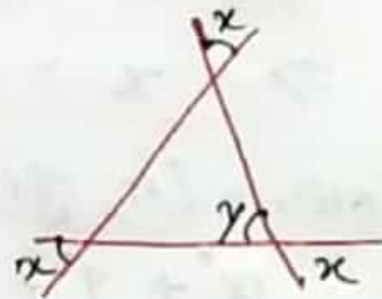
Hence, $\boxed{x = 50^\circ}$ And $\boxed{\gamma = 80^\circ}$ ✓

(iii) Sol.

For each case $\gamma = x$.
(V.O.A.)

Now in given Δ ,

$$\Rightarrow \underline{\gamma + \gamma + \gamma = 180^\circ}$$



By angle-sum property of a triangle

$$\Rightarrow 3\gamma = 180^\circ$$

$$\Rightarrow \gamma = \frac{180^\circ}{3} = 60^\circ$$

Hence, $\boxed{x = 60^\circ}$ And $\boxed{\gamma = 60^\circ}$ ✓