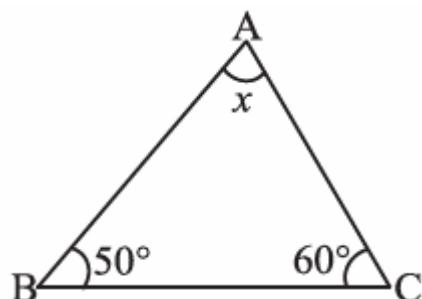


Access answers to Maths NCERT Solutions for Class 7
Chapter 6 – The Triangle and its Properties Exercise 6.3

1. Find the value of the unknown x in the following diagrams:

(i)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

$$= \angle BAC + \angle ABC + \angle BCA = 180^\circ$$

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

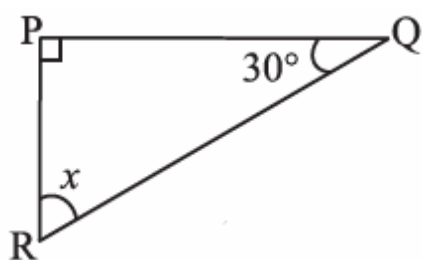
$$= x + 110^\circ = 180^\circ$$

By transposing 110° from LHS to RHS it becomes $- 110^\circ$

$$= x = 180^\circ - 110^\circ$$

$$= x = 70^\circ$$

(ii)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

The given triangle is a right angled triangle. So the $\angle QPR$ is 90° .

Then,

$$= \angle QPR + \angle PQR + \angle PRQ = 180^\circ$$

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

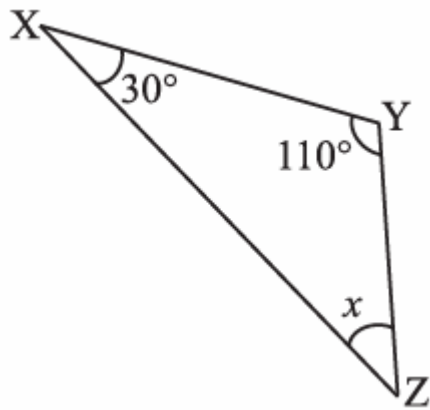
$$= 120^\circ + x = 180^\circ$$

By transposing 120° from LHS to RHS it becomes $- 120^\circ$

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

$$= x = 60^\circ$$

(iii)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

$$= \angle XYZ + \angle YXZ + \angle XZY = 180^\circ$$

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

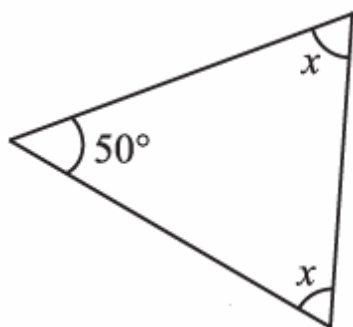
$$= 140^\circ + x = 180^\circ$$

By transposing 140° from LHS to RHS it becomes $- 140^\circ$

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

$$= x = 40^\circ$$

(iv)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

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

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

By transposing 50° from LHS to RHS it becomes $- 50^\circ$

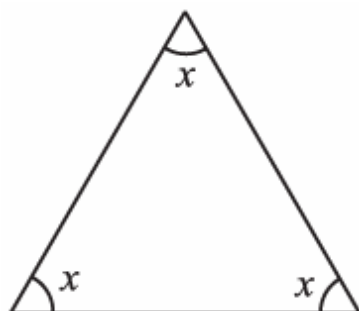
$$= 2x = 180^\circ - 50^\circ$$

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

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

$$= x = 65^\circ$$

(v)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

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

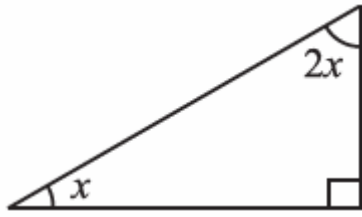
$$= 3x = 180^\circ$$

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

$$= x = 60^\circ$$

\therefore The given triangle is an equiangular triangle.

(vi)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

$$= 90^\circ + 2x + x = 180^\circ$$

$$= 90^\circ + 3x = 180^\circ$$

By transposing 90° from LHS to RHS it becomes $- 90^\circ$

$$= 3x = 180^\circ - 90^\circ$$

$$= 3x = 90^\circ$$

$$= x = 90^\circ/3$$

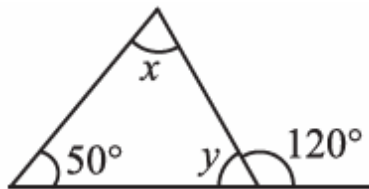
$$= x = 30^\circ$$

Then,

$$= 2x = 2 \times 30^\circ = 60^\circ$$

2. Find the values of the unknowns x and y in the following diagrams:

(i)



Solution:-

We Know That,

An exterior angle of a triangle is equal to the sum of its interior opposite angles.

Then,

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

By transposing 50° from LHS to RHS it becomes $- 50^\circ$

$$= x = 120^\circ - 50^\circ$$

$$= x = 70^\circ$$

We also know that,

The sum of all the interior angles of a triangle is 180° .

Then,

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

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

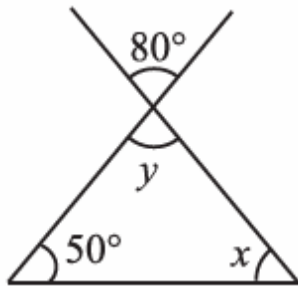
$$= 120^\circ + y = 180^\circ$$

By transposing 120° from LHS to RHS it becomes $- 120^\circ$

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

$$= y = 60^\circ$$

(ii)



Solution:-

From the rule of vertically opposite angles,

$$= y = 80^\circ$$

Then,

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

$$= 50^\circ + 80^\circ + x = 180^\circ$$

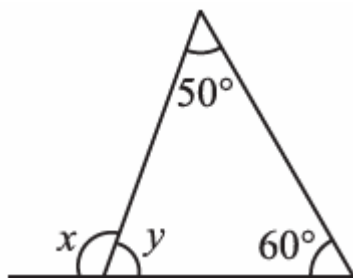
$$= 130^\circ + x = 180^\circ$$

By transposing 130° from LHS to RHS it becomes $- 130^\circ$

$$= x = 180^\circ - 130^\circ$$

$$= x = 50^\circ$$

(iii)



Solution:-

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

$$= 50^\circ + 60^\circ + y = 180^\circ$$

$$= 110^\circ + y = 180^\circ$$

By transposing 110° from LHS to RHS it becomes $- 110^\circ$

$$= y = 180^\circ - 110^\circ$$

$$= y = 70^\circ$$

Now,

From the rule of linear pair,

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

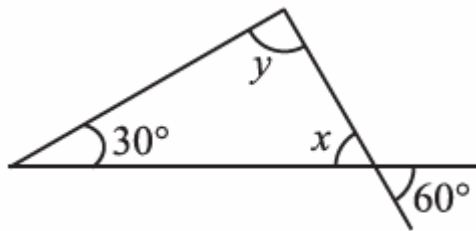
$$= x + 70^\circ = 180^\circ$$

By transposing 70° from LHS to RHS it becomes $- 70^\circ$

$$= x = 180^\circ - 70^\circ$$

$$= x = 110^\circ$$

(iv)



Solution:-

From the rule of vertically opposite angles,

$$= x = 60^\circ$$

Then,

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

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

$$= 30^\circ + 60^\circ + x = 180^\circ$$

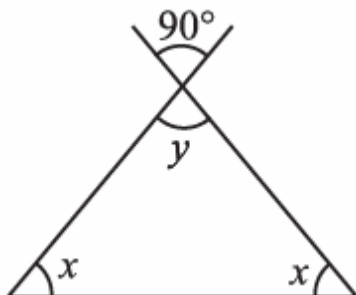
$$= 90^\circ + x = 180^\circ$$

By transposing 90° from LHS to RHS it becomes $- 90^\circ$

$$= x = 180^\circ - 90^\circ$$

$$= x = 90^\circ$$

(v)



Solution:-

From the rule of vertically opposite angles,

$$= y = 90^\circ$$

Then,

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

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

$$= 2x + 90^\circ = 180^\circ$$

By transposing 90° from LHS to RHS it becomes $- 90^\circ$

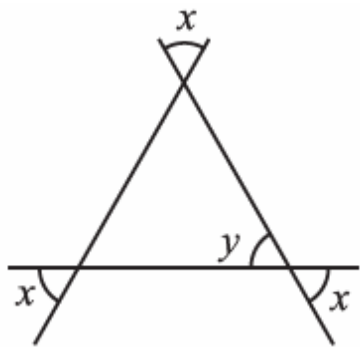
$$= 2x = 180^\circ - 90^\circ$$

$$= 2x = 90^\circ$$

$$= x = 90^\circ/2$$

$$= x = 45^\circ$$

(vi)



Solution:-

From the rule of vertically opposite angles,

$$= x = y$$

Then,

We know that,

The sum of all the interior angles of a triangle is 180° .

Then,

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

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

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

$$= x = 60^\circ$$