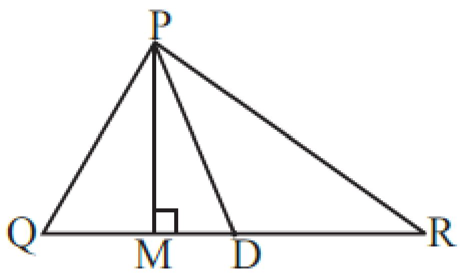
NCERT Solutions for Class 7 Maths Chapter 6: You may find The Triangle and Its Properties here. We have developed step-by-step solutions with thorough explanations for students who are anxious about finding the most thorough and detailed NCERT Solutions for Class 7 Maths Chapter 6. We suggest that students who want to do well in math review these NCERT Solutions for Class 7 Maths Chapter 6 and improve their skills.

NCERT Solutions for Class 7 Maths Chapter 6

Below we have provided NCERT Solutions for Class 7 Maths Chapter 6 for students to help them understand the poem better and to score good marks in their examination.

1. In Δ PQR, D is the mid-point of $\overline{QR}$.



(i) $\overline{PM}$ is ___.

Solution:-

Altitude

An altitude has one endpoint at a vertex of the triangle and another on the line containing the opposite side.

(ii) PD is ___.

Solution:-

Median

A median connects a vertex of a triangle to the mid-point of the opposite side.

(iii) Is QM = MR?

Solution:-

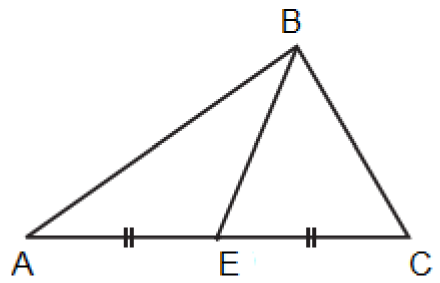
No, QM ≠ MR because D is the mid-point of QR.

2. Draw rough sketches for the following:

(a) In ΔABC, BE is a median.

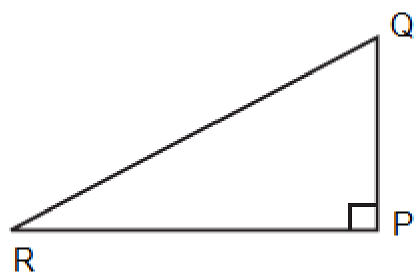
Solution:-

A median connects a vertex of a triangle to the mid-point of the opposite side.



(b) In ΔPQR, PQ and PR are altitudes of the triangle.

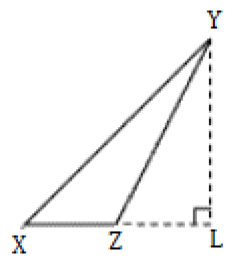
Solution:-



An altitude has one endpoint at a vertex of the triangle and another on the line containing the opposite side.

(c) In ΔXYZ, YL is an altitude in the exterior of the triangle.

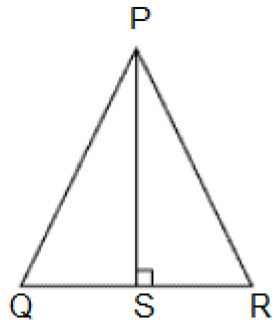
Solution:-



In the figure, we may observe that for ΔXYZ, YL is an altitude drawn exteriorly to side XZ which is extended up to point L.

3. Verify by drawing a diagram if the median and altitude of an isosceles triangle can be the same.

Solution:-

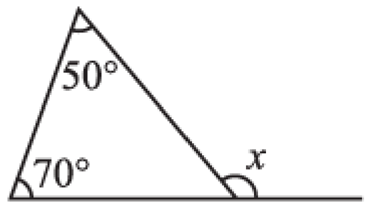


Draw a line segment PS ⊥ BC. It is an altitude for this triangle. Here, we observe that the length of QS and SR is also the same. So, PS is also a median of this triangle.

Exercise 6.2 Page: 118

1. Find the value of the unknown exterior angle x in the following diagram:

(i)



Solution:-

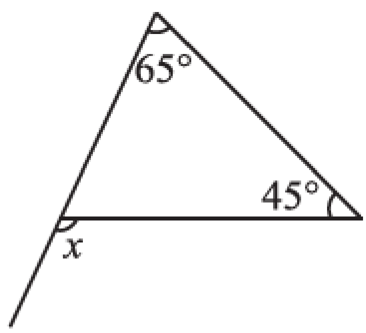
We know that,

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

= $x = 50^\circ + 70^\circ$

= $x = 120^\circ$

(ii)



Solution:-

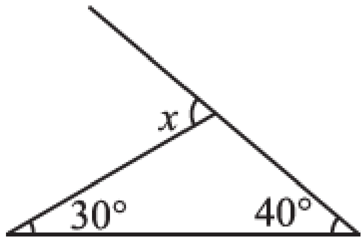
We know that,

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

= $x = 65^o + 45^o$

= $x = 110^o$

(iii)



Solution:-

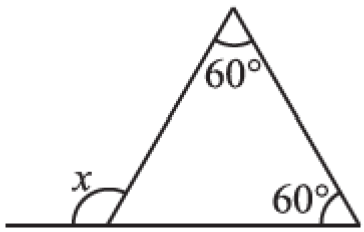
We know that,

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

= $x = 30^o + 40^o$

= $x = 70^o$

(iv)



Solution:-

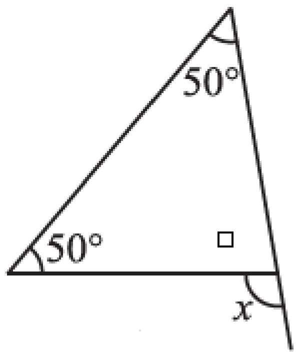
We know that,

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

= $x = 60^o + 60^o$

= $x = 120^o$

(v)



Solution:-

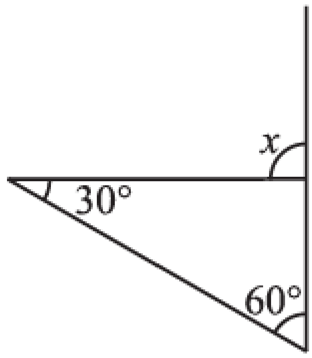
We know that,

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

= x = 50° + 50°

= x = 100°

(vi)



Solution:-

We know that,

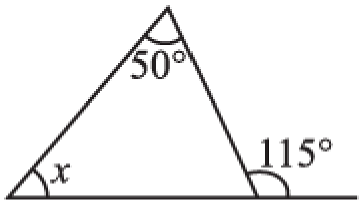
An exterior angle of a triangle is equal to the sum of its interior opposite angles.

= x = 30° + 60°

= x = 90°

2. Find the value of the unknown interior angle x in the following figures:

(i)



Solution:-

We know that,

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

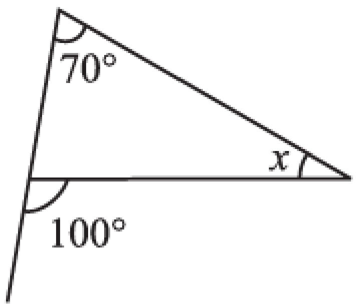
= $x + 50^{o} = 115^{o}$

By transposing 50^{o} from LHS to RHS, it becomes – 50^{o}

= $x = 115^{o} – 50^{o}$

= $x = 65^{o}$

(ii)



Solution:-

We know that,

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

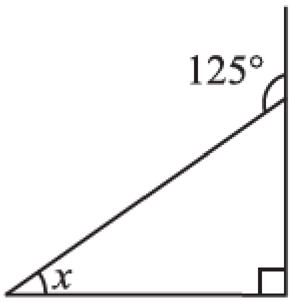
= $70^{o} + x = 100^{o}$

By transposing 70^{o} from LHS to RHS, it becomes – 70^{o}

= $x = 100^{o} – 70^{o}$

= $x = 30^{o}$

(iii)



Solution:-

We know that,

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

The given triangle is a right-angled triangle. So, the angle opposite to the x is 90^o.

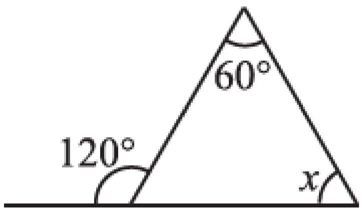
$= x + 90^o = 125^o$

By transposing 90^o from LHS to RHS, it becomes $– 90^o$

$= x = 125^o – 90^o$

$= x = 35^o$

(iv)



Solution:-

We know that,

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

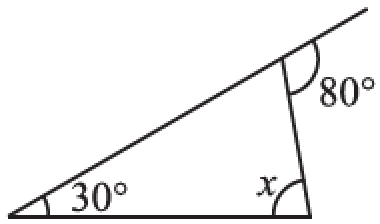
$= x + 60^o = 120^o$

By transposing 60^o from LHS to RHS, it becomes $– 60^o$

$= x = 120^o – 60^o$

$= x = 60^o$

(v)



Solution:-

We know that,

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

The given triangle is a right-angled triangle. So, the angle opposite to the x is 90°.

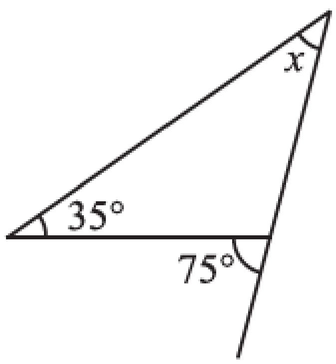
= x + 30° = 80°

By transposing 30° from LHS to RHS, it becomes – 30°

= x = 80° – 30°

= x = 50°

(vi)



Solution:-

We know that,

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

The given triangle is a right-angled triangle. So, the angle opposite to the x is 90°.

= x + 35° = 75°

By transposing 35° from LHS to RHS, it becomes – 35°

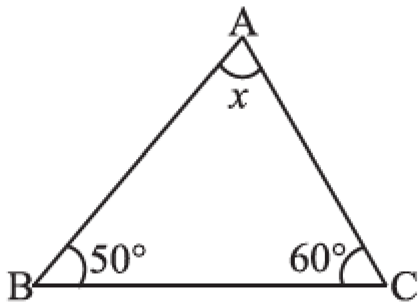
= x = 75° – 35°

= x = 40°

Exercise 6.3 Page: 121

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,

= ∠BAC + ∠ABC + ∠BCA = 180°

= x + 50° + 60° = 180°

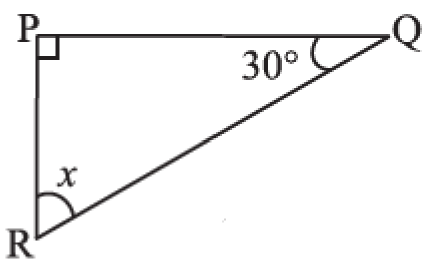
= x + 110° = 180°

By transposing 110° from LHS to RHS, it becomes – 110°

= x = 180° – 110°

= x = 70°

(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 ∠QPR is 90°.

Then,

= ∠QPR + ∠PQR + ∠PRQ = 180°

= 90° + 30° + x = 180°

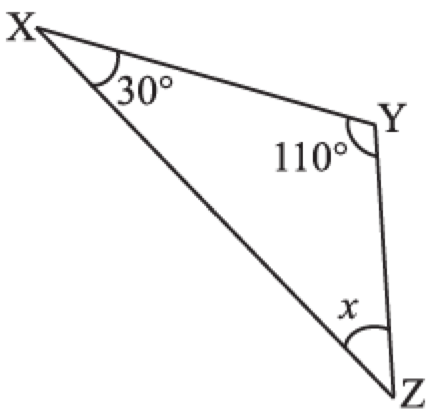
= 120° + x = 180°

By transposing 110° from LHS to RHS, it becomes – 110°

= x = 180° – 120°

= x = 60°

(iii)



Solution:-

We know that,

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

Then,

= ∠XYZ + ∠YXZ + ∠XZY = 180°

= 110° + 30° + x = 180°

= 140° + x = 180°

By transposing 140° from LHS to RHS, it becomes – 140°

= x = 180° – 140°

= x = 40°

(iv)

Solution:-

We know that,

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

Then,

= 50° + x + x = 180°

= 50° + 2x = 180°

By transposing 50° from LHS to RHS, it becomes – 50°

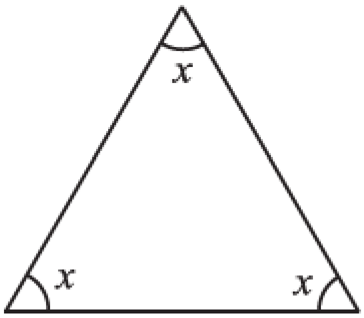
= 2x = 180° – 50°

= 2x = 130°

= x = 130°/2

= x = 65°

(v)



Solution:-

We know that,

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

Then,

= x + x + x = 180°

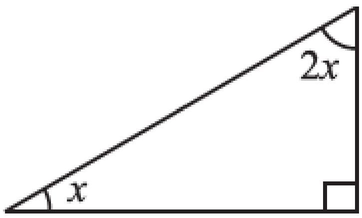
= 3x = 180°

= x = 180°/3

= x = 60°

∴ 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° + 2x + x = 180°

= 90° + 3x = 180°

By transposing 90° from LHS to RHS, it becomes – 90°

= 3x = 180° – 90°

= 3x = 90°

= x = 90°/3

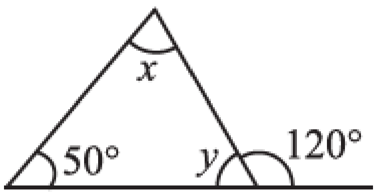
= x = 30°

Then,

= 2x = 2 × 30° = 60°

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,

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

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

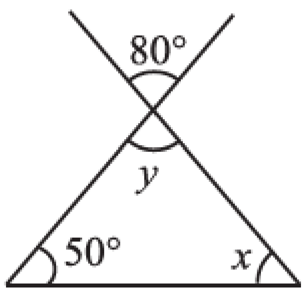
$= 120^\circ + y = 180^\circ$

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° + 80° + x = 180°

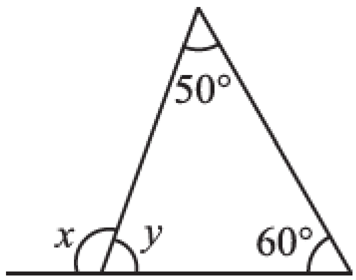
= 130° + x = 180°

By transposing 130° from LHS to RHS, it becomes – 130°

= x = 180° – 130°

= x = 50°

(iii)



Solution:-

We know that,

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

Then,

= 50° + 60° + y = 180°

= 110° + y = 180°

By transposing 110° from LHS to RHS, it becomes – 110°

= y = 180° – 110°

= y = 70°

Now,

From the rule of linear pair,

= x + y = 180°

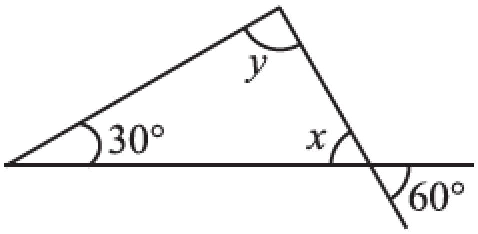
= x + 70° = 180°

By transposing 70° from LHS to RHS, it becomes – 70°

= x = 180° – 70

= x = 110°

(iv)



Solution:-

From the rule of vertically opposite angles,

= x = 60°

Then,

We know that,

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

Then,

= 30° + x + y = 180°

= 30° + 60° + y = 180°

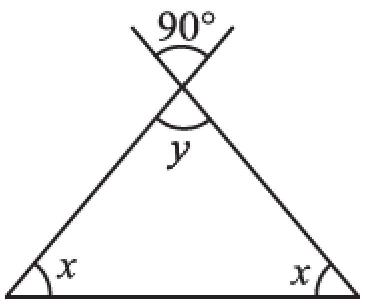
= 90° + y = 180°

By transposing 90° from LHS to RHS, it becomes – 90°

= y = 180° – 90°

= y = 90°

(v)



Solution:-

From the rule of vertically opposite angles,

= y = 90°

Then,

We know that,

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

Then,

= x + x + y = 180°

= 2x + 90° = 180°

By transposing 90° from LHS to RHS, it becomes – 90°

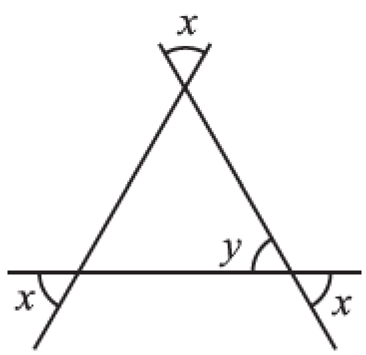
= 2x = 180° – 90°

= 2x = 90°

= x = 90°/2

= x = 45°

(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^o.

Then,

$= x + x + x = 180^o$

$= 3x = 180^o$

$= x = 180^o/3$

$= x = 60^o$