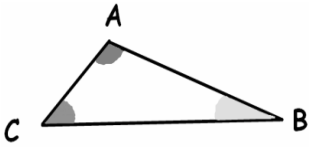
SpeEdLabs

TRIANGLE & ITS PROPERTIES

Concepts Covered

- Median of a Triangle, Altitude of a Triangle, Perpendicular Bisectors and Angle Bisectors of a triangle.
- Angle Sum Property of a Triangle, Exterior Angle of a Triangle and its Properties.
- Right-Angled Triangles and Pythagoras Theorem.

Triangle



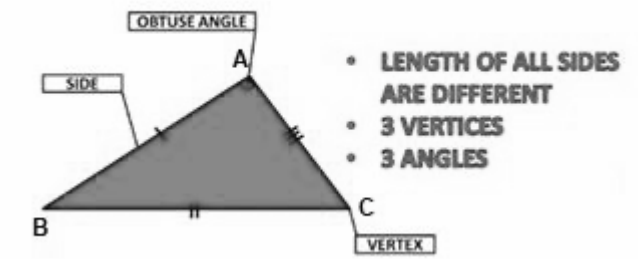
A three-sided simple closed figure is a triangle.
In the above figure, ABC is a triangle. It has three sides AB,BC, and CA.
A,B, and C are the three vertices of the triangle. ∠CAB, ∠ABC, and ∠BCA are its three angles. Triangle ABC is denoted as △ABC.

Types of Triangles

Based on their sides, triangles can be classified as follows:

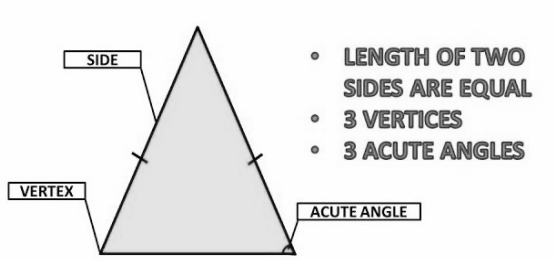
1. Scalene triangle: A triangle in which no two sides are equal is a scalene triangle.

In the above triangle, AB ≠ BC, BC ≠ CA and CA ≠ AB. This is a scalene triangle.



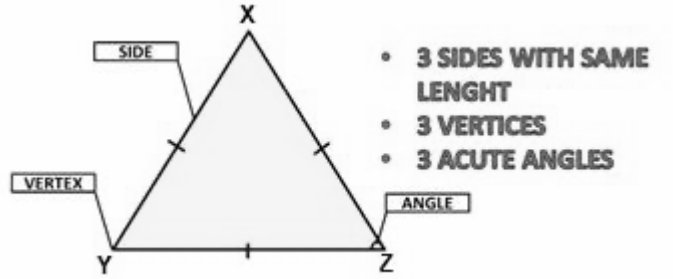
2. Isosceles triangle: A triangle in which any two sides are equal is an isosceles triangle.

In the triangle below, PQ = PR. Hence, PQR is an isosceles triangle.



3. Equilateral triangle: A triangle in which all the three sides are equal is an equilateral triangle.

In the above $\triangle \mathrm{XYZ}, \mathrm{XY} = \mathrm{YZ} = \mathrm{ZX}. \therefore \mathrm{XYZ}$ is an equilateral triangle.

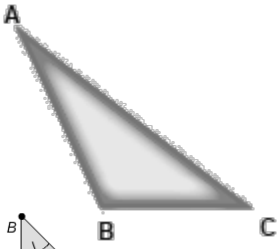


Based on the angles, triangles can be classified as follows:

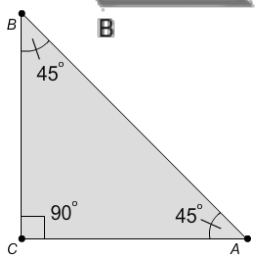
1. Acute-Angled Triangle: A triangle in which all the angles are acute is an acute-angled triangle. In such a triangle, square of the longest side is less than the sum of the squares of the other two sides.
In the triangle above, each of the angles A, B, and C is less than 90º.
Hence, ABC is an acute-angled triangle.

2. Right-Angled Triangle: A triangle which has a right angle is a right-angled triangle. In such a triangle, square of the longest side, the hypotenuse is equal to the sum of the squares of the other two sides.
In the right triangle, $\angle \mathrm{ABC} = 90^\circ$. Hence, ABC is a right-angled triangle.
In the right triangle ABC, if $\overline{\mathrm{AC}}$ is the longest side, then $\mathrm{AC}^2 = \mathrm{AB}^2 + \mathrm{BC}^2$.

3. Obtuse-Angled Triangle: A triangle in which one angle is greater than 90° is an obtuse angled triangle. In such a triangle, the square of the longest side is greater than the sum of the squares of the other two sides.
In the triangle above, $\angle \mathrm{ABC} > 90^\circ$.
Hence, ABC is an obtuse-angled triangle.
In an obtuse-angled triangle ABC, if $\overline{\mathrm{AC}}$ is the longest side, then $\mathrm{AC}^2 > \mathrm{AB}^2 + \mathrm{BC}^2$.



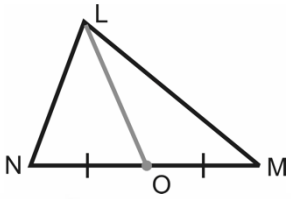
4. Isosceles Right-Angled Triangle: A triangle in which two sides are equal and one angle is 90° is an isosceles right-angled triangle.
In the triangle ABC, AC = BC and ∠BCA = 90º.
ABC is an isosceles right triangle.
In such a triangle, the ratio of sides AC, BC and AB is 1:1:√2.



Notes
(1) A scalene triangle can be acute, right, or obtuse angled.
(2) An isosceles triangle can be acute, right, or obtuse angled.
(3) An equilateral triangle has to be acute. It cannot contain a right angle or an obtuse angle.

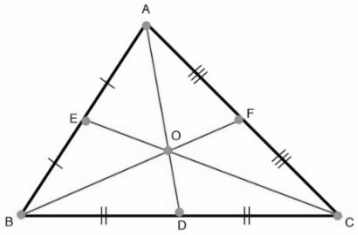
Median of a Triangle

A Median of a triangle is a straight line segment which is drawn from the vertex of a triangle to the middle point of the side that is opposite to that vertex. It divides the opposite side of the triangle into two equal halves. Therefore, in the given diagram LO is the median as it divides NM into two equal line segments that are NO and OM.

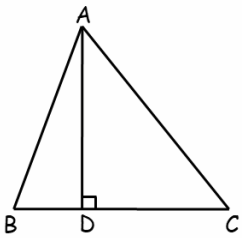


Properties of median of a triangle

- In a triangle there are 3 medians, one from each vertex. AD, BF and CE are the 3 medians of the triangle ABC.
- The 3 medians always meet at a single point known as the centroid of the circle. In the above triangle ABC, O is the centroid of the triangle.
- Median divides the triangle into two smaller triangles of equal area.
- The three medians of the triangles divide it into 6 smaller triangles of equal area.



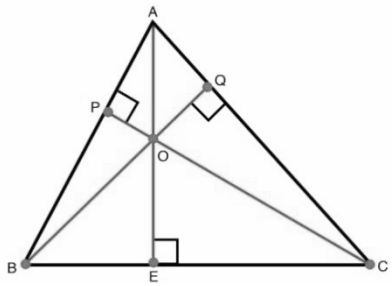
Altitude of a Triangle



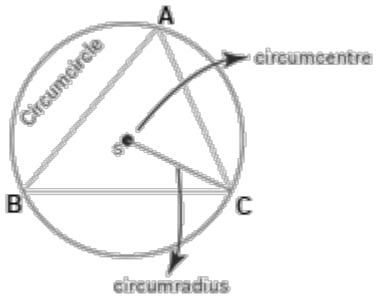
An altitude is a perpendicular line segment that is drawn from a vertex of a triangle to the side that is opposite to that vertex. It is the shortest distance from the vertex to its opposite side. In the given triangle ABC, AD is the altitude.

Properties of altitude of a triangle

- Every triangle has 3 altitudes, one from each vertex. AE, BQ and CP are the 3 altitudes of the triangle ABC.
- The 3 altitude always meet at a single point known as the ortho-centre of the circle. In the above triangle ABC, O is the ortho-centre of the triangle.
- The altitude of a triangle may lie inside or outside the triangle.
- In a right-angled triangle, the orthocenter coincides with the vertex of the right angle.
- In an acute-angled triangle, the orthocenter lies inside the triangle.
- In an obtuse-angled triangle, the orthocenter lies outside the triangle.

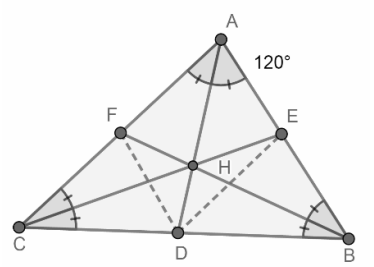


Perpendicular Bisector



The perpendicular bisector of a side bisects it and is perpendicular to it.
The perpendicular bisector of a side of a triangle need not pass through the opposite vertex.
The point of concurrence of perpendicular bisectors is called the circumcenter. It is denoted by S.
Since SA = SB = SC, taking S as the center and SA or SB or SC as the radius, a circle can be drawn passing through A, B, and C. This circle is called the circumcircle of the triangle. S is the circumcenter and SA (or SB or SC) is the circumradius of the triangle.
Note:
(1) In a right-angled triangle, the circumcentre is the mid-point of the hypotenuse.
(2) In an acute-angled triangle, the circumcenter lies inside the triangle.
(3) In an obtuse-angled triangle, the circumcenter lies outside the triangle.

Angle Bisector

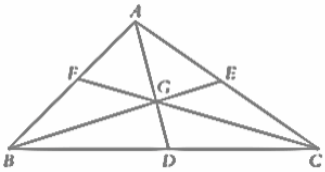


The angle bisector of an angle bisects that angle.
For each angle of a triangle, the bisector can be drawn.
$\overline{AD}, \overline{CE}$, and $\overline{BF}$ are the bisectors of $\angle BAC$, $\angle ACB$, and $\angle ABC$, respectively.

The bisectors of the interior angles of a triangle are concurrent. The point of concurrence of the bisectors of the interior angles of triangle is the incentre of the triangle.
Note: For any triangle, the incentre lies inside the triangle.

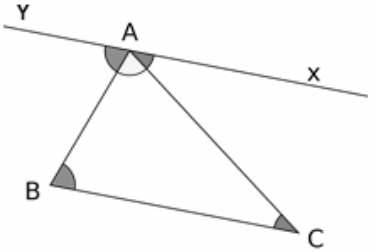
Example:

In the above △ABC, AD, BE and CF are the medians. G is the centroid. What is the ratio of the areas of △BGD and △GCE?



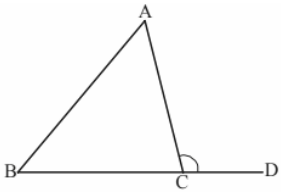
Solution: The three medians divide the triangle into six triangles of equal areas. Hence, the ratio of the areas of △BGD to that of △GCE is 1:1.

Angle sum property of Triangle



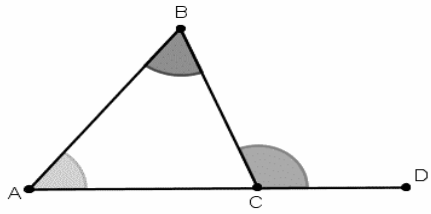
Theorem 1: The sum of the three angles of a triangle is $180°$.
Given: ABC is a triangle.
To prove: $\angle A + \angle B + \angle C = 180°$
Construction: Draw a line XY through A and parallel to $\overline{BC}$.
Proof: $\angle YAB + \angle BAC + \angle XAC = 180°$ (∵ straight line) …(1)
$\overline{XY}$ and $\overline{BC}$ are parallel and $\overline{AC}$ is a transversal.
∴ $\angle XAC = \angle ACB$(∵ alternate angles) …(2)
$\overline{XY}$ and $\overline{BC}$ are parallel and $\overline{AB}$ is a transversal.
$\angle YAB = \angle ABC$(∵ alternate angles) … (3)
From Eqs (1), (2), and (3), we have $\angle ABC + \angle BAC + \angle ACB = 180°$
Hence proved.

Exterior angle of a triangle



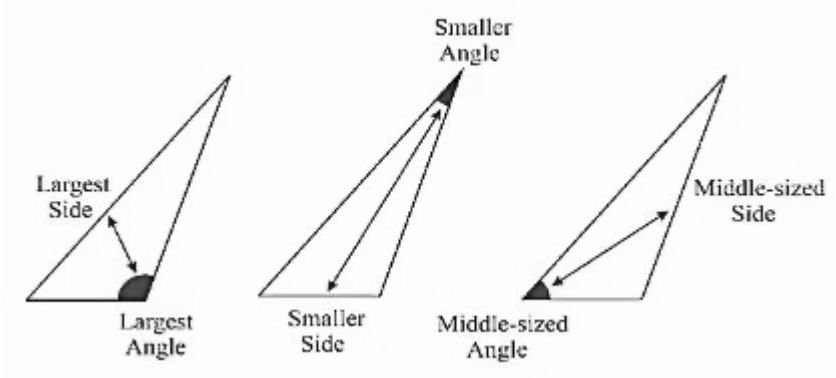
If we extend any side of a triangle, the angle that is formed with this side and its adjacent side is called the exterior angle of a triangle. There are three exterior angles in a triangle. In the given triangle ABC, BC is produced and then angle formed ($\angle ACD$) is the exterior angle.

Theorem 2: The exterior angle of a triangle is equal to sum of the interior angles opposite to it.



Given: ABC is a triangle; BC is produced to the point D.
To Prove: $\angle BCD = \angle A + \angle B$
Proof: $\angle A + \angle B + \angle BCA = 180°$ ($\because$ Angles of $\triangle ABC$)
$\angle BCA + \angle BCD = 180°$ ($\because$ linear pair)
$\therefore \angle A + \angle B + \angle BCA = \angle BCA + \angle BCD \Rightarrow \angle BCD = \angle A + \angle B$
Hence proved.

Given below are the statements of some of the properties of triangles:
(1) The sum of any two sides of a triangle is greater than the third side.
In $\triangle PQR, PQ + QR > PR$, $QR + RP > PQ$, and $RP + PQ > QR$
(2) Difference between any two sides is less than the third side.
$PQ - QR < PR, QR - RP < PQ$, and $RP - PQ < QR$
(3) Angles opposite to equal sides are equal and vice versa.
If $\angle P = \angle Q$, then $QR = PR$.
If $QR = PR$, then $\angle P = \angle Q$.
(4) If the angles are in increasing or decreasing order, then the sides opposite to them also will be in the same order. If $\angle P > \angle Q > \angle R$, then $QR > PR > PQ$.



(1) Two angles of a triangle measure 90º and 30º. The measure of the third angle is:
(A) 90º (B) 60º
(C) 20º (D) 45º

(2) The ratio of the measures of the three angles of a triangle is 2 : 3 : 4. The measure of the largest angle is:
(A) 80º (B) 60º
(C) 40º (D) 180º

(3) A triangle has how many sides?
(A) 5 (B) 4
(C) 3 (D) 6

Answer Key

(1) B **(2)** A **(3)** C

Example:

The sides of a △ABC measure 7 cm, 24 cm and 25 cm. What type of a triangle is ABC?

Solution: Since no two sides are equal, ABC is a scalene triangle.

Further, $7^2 + 24^2 = 25^2$,

Since the square of the longest side is equal to the sum of the squares of the other two sides, ABC is a right-angled triangle.

Example:

In $\triangle$ PQR, $\angle P = 50^\circ$ and $\angle Q = 60^\circ$. Find $\angle R$.

Solution: In a triangle, the sum of the angles is equal to 180°. $\angle P + \angle Q + \angle R = 180^\circ$

$50^\circ + 60^\circ + \angle R = 180^\circ \Rightarrow \angle R = 70^\circ$

Example:

In △ABC, AB = 5 cm and BC = 4 cm. Find the range of values that CA can take.

Solution: In a triangle, the sum of two sides is greater than the third side and the difference of two sides is less than the third side.

$CA < AB + BC$ and $CA > AB - BC$

$\Rightarrow CA < 9$ cm and $CA > 1$ cm

$\Rightarrow 1 \text{ cm} < CA < 9 \text{ cm}$

Example:

In △ABC, AC = BC and ∠BAC = 50°. Find ∠BCA.

Solution: Given: AC = BC

In a triangle, angles opposite to equal sides are equal.

$\therefore \angle ABC = \angle CAB = 50^\circ$

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

$50^\circ + \angle BCA + 50^\circ = 180^\circ \Rightarrow \angle BCA = 80^\circ$

(1) If two sides of a triangle are added then the result is

(A) Greater than 3rd side (B) Less than 3rd side

(C) Equal to 3rd side (D) None

(2) Which is the longest side of a right triangle:

(A) Base (B) Perpendicular

(C) Hypotenuse (D) None

(3) Maximum number of possible obtuse angles in a triangle is?

(A) 0 (B) 1

(C) 2 (D) 3

Answer Key

(1) A **(2)** C **(3)** B

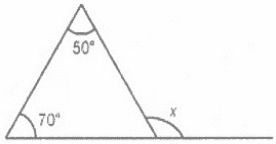
Solved Examples

(1) A triangle has how many sides ?
Solution: 3, A triangle is a closed figure of three sides.

(2) A triangle has how many medians?
Solution: 3, A triangle has three vertices and a median connects a vertex of a triangle to the mid-point of the opposite side.

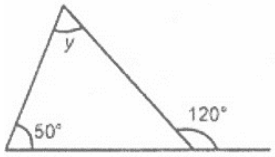
(3) A triangle has how many altitudes?
Solution: 3, Perpendicular drawn from vertex is called altitude and as such there are three vertices in a triangle.

(4) Find the value of x:



Solution: 120°, Sum of interior opposite angles is equal to exterior angle.

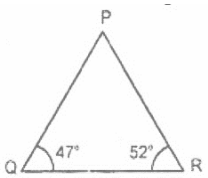
(5) Find the value of y:



Solution: 70°, Difference of exterior angle and one interior opposite angle.

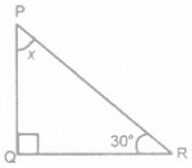
(6) Sum of three angles of a triangle is:
Solution: 180°, Angle sum property.

(7) Find the third angle of the given triangle



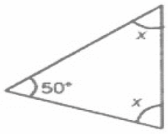
Solution: 81°, According to angle sum property first add two given angles and sum is subtracted from 180°

(8) Find the unknown x in the following diagram



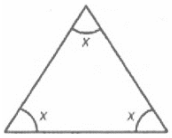
Solution: 60°, One angle is 90° according to diagram and according to angle sum property.

(9) Find the value of x in the given diagram:



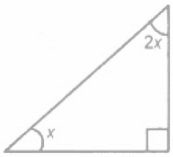
Solution: 65°, Sum of three angles is 180° and of three angles 2 angles are equal therefore x is one half of 130°.

(10) Find the value of x in the given diagram :



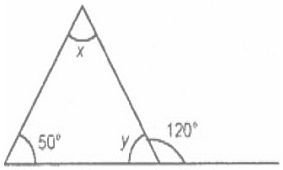
Solution: 60°, All angles are equal therefore 180° is divided by 3.

(11) Find the value of x in the given diagram :



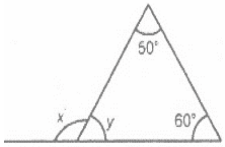
Solution: 30°, Out of three angles one angle is 90°.
Sum of remaining two angles is 90° therefore 3x = 90° and x = 30°.

(12) Find the value of x and y in the following diagram



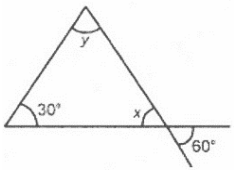
Solution: (70, 60)
Exterior angle is equal to the sum of interior opposite angles.

(13) Find the value of x and y in the following diagram



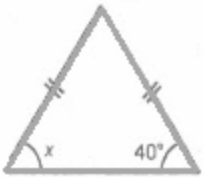
Solution: (110, 70)
Exterior angle and angle sum property.

(14) Find the value of x and y in the following diagram :



Solution: (60, 90)
Since, x is vertically opposite angle and value of y according to angle sum property.

(15) Find the angle x in given diagram :



Solution: 40°, Two sides are equal and x is opposit angle of equal side.

(1) If one angle is the average of the other two angles and the difference between the greatest and least angles is $60°$, which triangle is formed?
Solution: Let the least angle be x^o.
The greatest angle $= x^o + 60°$

Third angle = $\frac{x+x+60^\circ}{2} = x + 30^\circ$

We have, $x + x + 30^\circ + x + 60^\circ = 180^\circ$

$\Rightarrow 3x + 90^\circ = 180^\circ \Rightarrow x = 30^\circ$

The angles are $30^\circ, 60^\circ$ and 90°. Since one of the angles is 90° the triangle formed is a right angled triangle.

(16) In a △PQR, PQ = PR and ∠Q is twice that of ∠P. What is the measure of ∠Q ?

Solution: Since $PQ = PR, \angle Q = \angle R$, Given that $\angle Q = 2\angle P$, we have

$$\angle P + \angle Q + \angle R = 180^\circ \Rightarrow \frac{\angle Q}{2} + \angle Q + \angle Q = 180^\circ$$

$$\Rightarrow \frac{5}{2}\angle Q = 180^\circ \Rightarrow \angle Q = 72^\circ$$

(17) If two sides of an isosceles triangle are 3 cm and 8 cm, what is the length of the third side?

Solution: Length of the third side should be 8 cm, because if we take third side as 3 cm, then the sum of two sides 3 cm + 3 cm = 6 cm is less than third side.

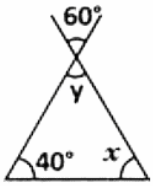
(18) If the angles of a triangle are in the ratio 1:2:7, what type of a triangle is it?

Solution: Let the measures of the angles be 1x, 2x and 7x.

We have, 1x + 2x + 7x = 180° ⇒ x = 18°.

The angles are 18°, 36° and 126°. ∴ The triangle is obtuse angled.

(19) From the following figure, what are the respective values of x and y?



Solution: 60° & y are vertically opposite angles which are equal ⇒ y = 60° In the triangle,

x + 60° + 40° = 180° (Angle sum property) ⇒ x = 180° – 100° = 80°

(20) Angles of a triangle are (x+10°), (x+40°) and (2x-30°). What is the value of x ?

Solution: Given that the angles of the triangle are (x+10°), (x+40°) and (2x-30°)

Sum of the angles of a triangle = 180°

⇒ 1x+10° + x+40° + 2x-30° = 180° ⇒ 4x = 160° ⇒ x = 40°

(21) Which of the following cannot be the sides of a triangle?

(i) 4.5 cm, 3.5 cm, 6.4 cm

(ii) 2.5 cm, 3.5 cm, 6.0 cm

(iii) 2.5 cm, 4.2 cm, 8 cm

Solution: (i) Given sides are, 4.5 cm, 3.5 cm, 6.4 cm

Sum of any two sides = 4.5 cm + 3.5 cm = 8 cm

Since 8 cm > 6.4 cm (Triangle inequality), The given sides form a triangle.

(ii) Given sides are 2.5 cm, 3.5 cm, 6.0 cm

Sum of any two sides = 2.5 cm + 3.5 cm =6.0 cm

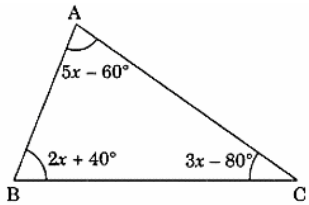
Since 6.0 cm = 6.0 cm, The given sides do not form a triangle.

(iii) 2.5 cm, 4.2 cm, 8 cm

Sum of any two sides =2.5 cm + 4.2 cm = 6.7 cm

Since 6.7 cm < 8 cm, The given sides do not form a triangle.

(22) In the given figure, find x.



Solution: In △ABC, we have 5x – 60° + 2x + 40° + 3x – 80° = 180°

(Angle sum property of a triangle)

⇒ 5x + 2x + 3x – 60° + 40° – 80° = 180°

⇒ 10x – 100° = 180° ⇒ 10x = 180° + 100°

⇒ 10x = 280° ⇒ x = 28° Thus, x = 28°

(23) Two sides of a triangle are 4 cm and 7 cm. What can be the length of its third side to make the triangle possible?

Solution: Let the length of the third side be x cm.

Condition I: Sum of two sides > the third side

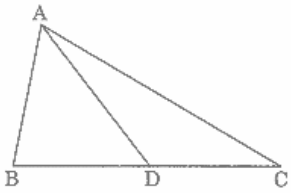
i.e. 4 + 7 > x ⇒ 11 > x ⇒ x < 11

Condition II: The difference of two sides less than the third side.

i.e. 7 – 4 < x ⇒ 3 < x ⇒ x > 3

Hence the possible value of x are 3 < x < 11 i.e. x < 3 < 11

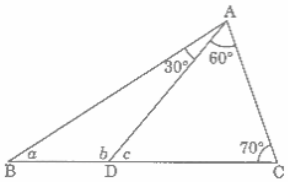
(24) AD is the median of a ΔABC, prove that AB + BC + CA > 2AD



Solution: In ΔABD, AB + BD > AD …(i)
(Sum of two sides of a triangle is greater than the third side)
Similarly, In ΔADC, we have AC + DC > AD …(ii)
Adding (i) and (ii), we have AB + BD + AC + DC > 2AD
⇒ AB + (BD + DC) + AC > 2AD
⇒ AB + BC + AC > 2AD Hence, proved.

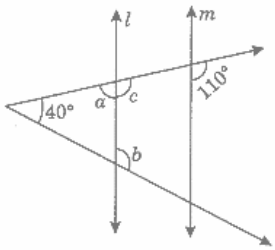
(25) I have three sides. One of my angle measure 15°. Another has a measure of 60°. What kind of a polygon am I? If I am a triangle, then what kind of triangle am I?
Solution: Since I have three sides.
It is a triangle i.e. three-sided polygon.
Two angles are 15° and 60°.
Third angle = 180° – (15° + 60°) = 180° – 75° (Angle sum property) = 105°
which is greater than 90°. Hence, it is an obtuse triangle.

(26) In figure, Find the values of a, b and c.



Solution: In ∆ADC, we have
∠c + 60° + 70° = 180° (Angle sum property)
⇒ ∠c + 130° = 180° ⇒ ∠c = 180° – 130° = 50°
∠c + ∠b = 180° (Linear pair)
⇒ 50° + ∠b = 180° ⇒ ∠ b = 180° – 50° = 130°
In ∆ABD, we have ∠a + ∠b + 30° = 180° (Angle sum property)
⇒ ∠a + ∠130° + 30° = 180°
⇒ ∠a + 160° = 180° ⇒ ∠a = 180° – 160° = 20°
Hence, the required values are a = 20°, b = 130° and c = 50°

(27) In the following figure, find the unknown angles a and b, if l || m.



Solution: Here, l || m, ∠c = 110° (Corresponding angles)
∠c + ∠a = 180° (Linear pair)
⇒ 110° + ∠a = 180° ⇒ ∠a = 180° – 110° = 70°
Now ∠b = 40° + ∠a (Exterior angle of a triangle)
⇒ ∠b = 40° + 70° = 110°
Hence, the values of unknown angles are a = 70° and b = 110°

Exercise

FILL IN THE BLANKS

(1) Sum of _____ angles of the triangle is 180°.
(2) The sum of any two sides of a triangle is _____ than the third side.
(3) There are _____ elements of a triangle.
(4) A triangle has _____ medians and _____ altitudes.
(5) A _____ is a simple closed figure made of three line segments.
(6) The line segment that joins a vertex of a triangle to the mid-point of opposite side is called a _____ of a triangle.
(7) Perpendicular line segment from a vertex of a triangle to its opposite side is called an _____ of the triangle.
(8) A triangle is said to be _____ if all its sides are of different lengths
(9) A triangle is said to be an _____ triangle if any two of its sides are equal.
(10) A triangle is said to be _____ if all of its sides are equal.
(11) An acute triangle is if each of its angle is _____ 90°
(12) An obtuse triangle is if one of its angle is greater than _____.
(13) A _____ is if one of its angle is equal to 90°.
(14) All the angles of a scalene triangle are _____
(15) All the angles of an equilateral triangle are _____
(16) ABC is an isosceles triangle with AB = AC and AD is altitude, then Angle B = _____.
(17) A/an _____ connect a vertex of a triangle to the mid-point of the opposite side.
(18) _____ is the longest side of a right triangle?

TRUE OR FALSE

(1) The interior of a triangle includes its vertices.
(2) The triangular region includes the vertices of the corresponding triangle.
(3) An equilateral triangle is isosceles also.
(4) The sum of the measures of three angles of a triangle is greater than 180°
(5) It is possible to have a triangle in which two of the angles are obtuse.
(6) It is possible to have a triangle in which two angles are acute.
(7) It is possible to have a triangle in which each angle is less than 60°.
(8) It is possible to have a triangle in which each angle is greater than 60°
(9) In a triangle Sum of any two sides of a triangle is not less than the third side.
(10) The length of the third side of a triangle cannot be smaller than the difference of the lengths of any two sides.
(11) A triangle can have only one median.
(12) The sum of the lengths of any two sides of a triangle is greater than the length of the third side.
(13) If P is a point on the side BC of △ABC. Then (AB+BC+AC) > 2AP
(14) A triangle with two right angles.
(15) A triangle with two obtuse angles.
(16) A triangle with two acute angles.
(17) A triangle with all the three angles equal to 60°.
(18) A triangle with all the three angles less than 60°.

OBJECTIVE TYPE QUESTION

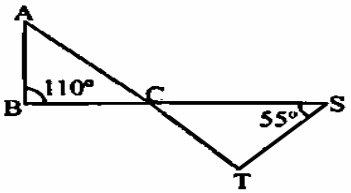
(1) What is the length of the hypotenuse of a right angled triangle whose two legs measure 30 cm and 0.4 metres.
(A) 50 cm (B) 60 cm
(C) 0.568 cm (D) 37 cm

(2) The three angles of a triangle are in the ratio 1:2:3, then the greatest angle is
(A) 105° (B) 90°
(C) 120° (D) 100°

(3) If the two legs of a right angled triangle are equal and the square of the hypotenuse is 400 sq.cm, what is the length of each leg?
(A) 40 cm (B) $10\sqrt{2}$ cm
(C) $50\sqrt{2}$ cm (D) 15 cm

(4) If one of the angles of an isosceles triangle measures 30°, then what are the possible differences between the measures of its unequal angles?
(A) 20° and 70° (B) 45° and 90°
(C) 30° and 90° (D) 45° and 105°

(5) The given figure shows an isosceles △ABC with AB=BC. Sides BC and AC are extended to S and T respectively, such that CS and CT along with ST form sides of △CST.How can △CST be classified



(A) Acute - angled and scalene (B) Acute - angled and isosceles
(C) Right - angled and scalene (D) Right - angled and isosceles

(6) In a △ABC if AB + BC = 8 cm, BC + CA = 10 cm, CA + AB = 12 cm, what is the sum of the lengths of its sides?
(A) 15 cm (B) 20 cm
(C) 37.5 cm (D) 40 cm

(7) △ABC is right - angled at B. If the measures of ∠A and ∠C are in the ratio 7:5 then what is the measure of ∠C ?
(A) 40° (B) 60°
(C) 37.5° (D) 70°

(8) Which of the following are the angles in a right angled triangle other than the right angle?
(A) Acute angles (B) Obtuse angles
(C) Right angles (D) None of these

(9) If a,b, and c are the sides of a triangle, which of the following is correct?
(A) a-b>c (B) c>a+b
(C) c=a+b (D) b<c+a

(10) If the angles of a triangle are in the ratio 1:3:14 what type of a triangle is it?
(A) An acute angled triangle. (B) An obtuse angled triangle.
(C) A right angled triangle. (D) A right angled isosceles triangle.

(11) A triangle always has
(A) Exactly one acute angle. (B) Exactly two acute angles.
(C) At least two acute angles. (D) Exactly 2 right angles.

(12) How many independent measurements are required to construct a triangle?
(A) 3 (B) 4
(C) 2 (D) 5

(13) In a △ABC, if ∠B is an obtuse angle, which is the longest side?
(A) AB (B) BC
(C) AC (D) Either (A) or (B)

(14) Two chimneys 18 m and 13 m high stand upright on a ground. If their feet are 12 m apart, what is the distance between their tops?
(A) 10 cm (B) 27 m
(C) 13 m (D) 9 m

(15) The top of a broken tree touches the ground at a distance of 15 m from its base. If the tree is broken at a height of 8 m from the ground, what is the actual height of the tree?
(A) 18 m (B) 25 m
(C) 27 m (D) 29 m

(16) What is the ratio in which the centroid of a triangle divides the medians?
(A) 1:2 (B) 1:3
(C) 2:1 (D) 3:1

(17) The centroid of a triangle is the point or concurrence of which of these?
(A) Angle bisectors (B) Perpendicular bisectors
(C) Altitudes (D) Medians

(18) Which of the following statements is false?
(A) The centroid of an acute angled triangle lies in the interior of the triangle.
(B) The orthocenter of an acute angled triangle lies in the interior of the triangle
(C) The medians of a triangle are concurrent.
(D) From circumcenter, we cannot draw a circle touching all the three vertices of triangle.

(19) Which of the following statements is false?
(A) The orthocenter of a right angled triangle is the vertex containing the right angle.
(B) The median of a triangle joins a vertex to the midpoint of the opposite side.
(C) The centroid of a right angled triangle lies in the interior of the triangle.
(D) Incentre lies outside then triangle.

Answer Key

FILL IN THE BLANKS

(1)	Three	**(6)**	Median	**(11)**	Less than	**(16)**	Angle C
(2)	Greater	**(7)**	Altitude	**(12)**	90°	**(17)**	Median
(3)	Six	**(8)**	A Scalene Triangle	**(13)**	Right Triangle	**(18)**	Hypotenuse
(4)	Three, Three	**(9)**	An Isosceles Triangle	**(14)**	Unequal		
(5)	Triangle	**(10)**	An Equilateral Triangle	**(15)**	Equal		

TRUE OR FALSE

(1)	False	**(6)**	True	**(11)**	False	**(16)**	True
(2)	True	**(7)**	False	**(12)**	True	**(17)**	True
(3)	True	**(8)**	False	**(13)**	True	**(18)**	False
(4)	False	**(9)**	False	**(14)**	False		
(5)	False	**(10)**	False	**(15)**	False		

OBJECTIVE TYPE QUESTIONS

(1)	(A)	**(6)**	(A)	**(11)**	(C)	**(16)**	(C)
(2)	(B)	**(7)**	(C)	**(12)**	(A)	**(17)**	(D)
(3)	(B)	**(8)**	(A)	**(13)**	(C)	**(18)**	(D)
(4)	(B)	**(9)**	(D)	**(14)**	(C)	**(19)**	(D)
(5)	(C)	**(10)**	(B)	**(15)**	(B)		