

Question Bank

1. CHOOSE THE CORRECT OPTION.

- a. A right-angled triangle is also isosceles. Each of its equal angles is
- i. 90° ii. 45° iii. 60° iv. 30°
- b. A rectangle is divided along a diagonal. The two triangles formed are
- i. equilateral and acute-angled
ii. isosceles and acute-angled
iii. scalene and right-angled
iv. isosceles and right-angled
- c. A square is divided along a diagonal. The two triangles formed are
- i. equilateral and acute-angled
ii. isosceles and acute-angled
iii. scalene and right-angled
iv. isosceles and right-angled
- d. The angles of a triangle are in the ratio 1:1:4. The angles are
- i. $10^\circ, 10^\circ, 40^\circ$ ii. $20^\circ, 20^\circ, 80^\circ$
iii. $30^\circ, 30^\circ, 120^\circ$ iv. $30^\circ, 60^\circ, 90^\circ$
- e. An equilateral triangle is cut along the bisector of a vertex. The two triangles formed will have the angles of
- i. $30^\circ, 60^\circ, 90^\circ$ ii. $60^\circ, 60^\circ, 60^\circ$
iii. $45^\circ, 45^\circ, 90^\circ$ iv. $30^\circ, 30^\circ, 120^\circ$

2. FILL IN THE BLANKS.

- a. The prefix tri-means _____ .
- b. A triangle in which no two sides are equal is called _____ .
- c. In an equilateral triangle, all angles measure _____ .
- d. The sum of the three angles of a triangle is _____ .
- e. In an isosceles triangle, the angles opposite the equal sides are _____ .
- f. In a right-angled triangle, the hypotenuse is the _____ (longest/shortest) side.
- g. The shortest distance from a point to a line is the _____ distance between them.
- h. Complete the Pythagorean triple: 5, _____ , 13.

3. ANSWER THE FOLLOWING.

- a. Say whether triangles are possible with the following sides:
- i. 4 cm, 5 cm, 6 cm
ii. 2 cm, 5 cm, 8 cm
iii. 25 cm, 15 cm, 35 cm
iv. 12 cm, 18 cm, 20 cm
- b. Say whether triangles are possible with the following angles:

i. $30^\circ, 50^\circ, 90^\circ$ ii. $35^\circ, 35^\circ, 110^\circ$

iii. $10^\circ, 10^\circ, 160^\circ$ iv. $65^\circ, 70^\circ, 75^\circ$

c. Classify triangles with the following sides as equilateral, isosceles and scalene:

i. 4 cm, 7 cm, 10 cm

ii. 7.2 cm, 7.2 cm, 7.2 cm

iii. 5 cm, 9 cm, 9 cm

iv. 3.5 cm, 4.5 cm, 6.5 cm

d. Classify triangles with the following angles as acute-, obtuse- and right-angled:

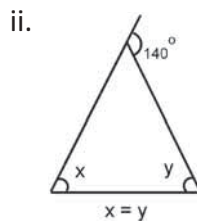
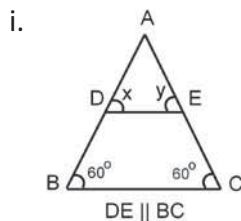
i. $60^\circ, 60^\circ, 60^\circ$ ii. $30^\circ, 60^\circ, 90^\circ$

iii. $30^\circ, 40^\circ, 110^\circ$ iv. $45^\circ, 55^\circ, 80^\circ$

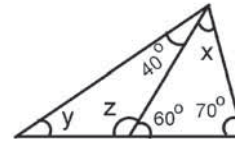
e. The ratio of the sides of a triangle is 2 : 3 : 4. If the shortest side is 2.5 cm long, find the perimeter of the triangle.

f. In an isosceles triangle, one angle is equal to 100° . Find the other angles.

g. Find the unknown angles in the given figures.



iii.



h. Prove that in a right-angled triangle, the hypotenuse is the longest side.

i. A right-angled triangle has a hypotenuse of 17 cm and a side of 15 cm. Find the third side.

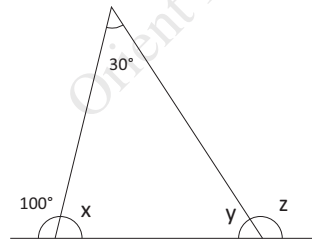
j. A man travelled 24 km in a straight line from south to north and then 7 km from there to east also in a straight line. How far will he be from the starting point?

k. A rectangular garden of length 8 m and breadth 6 m has a narrow path running along its diagonal. What is the length of the pathway?

l. A vertical pillar of length 40 m on a bridge is supported by a slanting iron rod. One end of the rod is fastened to the tip of the pillar and the other end to the bridge at a distance of 30 m from the pillar. What is the length of the iron rod? Draw a diagram to represent this.

- The three angles of a triangle are given. Classify the triangle as acute, obtuse or right-angled:
 - $35^\circ, 55^\circ, 90^\circ$: _____
 - $30^\circ, 110^\circ, 40^\circ$: _____
 - $53^\circ, 85^\circ, 42^\circ$: _____
 - $60^\circ, 60^\circ, 60^\circ$: _____
- Measures of three sides of a triangle are given. Classify the triangle as equilateral, isosceles or scalene:
 - 35 cm, 45 cm, 55 cm: _____
 - 7 cm, 4 cm, 7 cm: _____
 - 12 cm, 12 cm, 12 cm: _____
 - 4 cm, 6 cm, 9 cm: _____
- The three angles of a triangle are given. Classify the triangle as equilateral, isosceles or scalene:
 - $50^\circ, 20^\circ, 110^\circ$: _____
 - $60^\circ, 60^\circ, 60^\circ$: _____
 - $40^\circ, 90^\circ, 50^\circ$: _____
 - $25^\circ, 130^\circ, 25^\circ$: _____
- Two angles of a triangle are given. Find the third angle:
 - $35^\circ, 65^\circ$: _____
 - $45^\circ, 45^\circ$: _____
 - $18^\circ, 42^\circ$: _____
 - $30^\circ, 90^\circ$: _____
- In a triangle, the angles are in the ratio 1 : 2 : 3. Find the angles. What type of a triangle is it? _____

- Find $\angle x$, $\angle y$ and $\angle z$ in the following figure:



- Can a triangle be constructed with sides of the following lengths?
 - 10 cm, 8 cm, 15 cm: _____
 - 22 cm, 33 cm, 56 cm: _____
 - Two sides of a right-angled triangle are given. Find the third side:
 - $a = 3$ cm; $b = 4$ cm; $c = ?$ _____
 - $b = 35$ cm; $c = 37$ cm; $a = ?$ _____
 - $a = 0.5$ cm; $c = 1.3$ cm; $b = ?$ _____
-
- A right-angled triangle with a right angle symbol at the bottom-left vertex. The vertical side is labeled 'a', the horizontal side is labeled 'b', and the hypotenuse is labeled 'c'.
- Find the length of the diagonal of a rectangle whose length and breadth are 8 cm and 6 cm respectively.

 - Can an obtuse angled triangle be right-angled? _____
 - If a right-angled triangle is isosceles, find its equal angles: _____

Question Bank

1. CHOOSE THE CORRECT OPTION.

- a. If $\angle ABC \cong \angle PQR$, which side is congruent to side AC?
- i. PQ ii. QR
iii. PR iv. RQ
- b. In how many ways can two triangles be superposed on each other?
- i. one ii. two
iii. three iv. six
- c. Which of the following is not a congruent condition?
- i. ASA ii. AAA
iii. SAS iv. SSS
- d. If $\triangle ABC \cong \triangle PQR$ and $\angle A = 120^\circ$, $\angle B = 25^\circ$, $\angle C = 35^\circ$, what is $\angle Q = ?$
- i. 120° ii. 35°
iii. 25° iv. 60°
- e. $\triangle ABC \cong \triangle PQR$. Area of $\triangle ABC$ is 60 cm^2 . $\triangle PQR$ has a base of 12 cm. Its altitude is
- i. 6 cm ii. 12 cm
iii. 10 cm iv. 60 cm

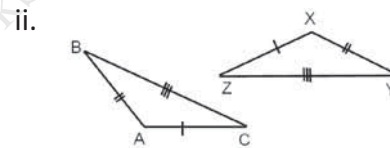
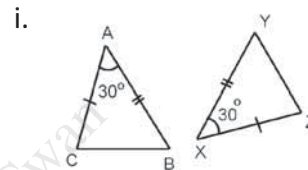
2. SAY WHETHER TRUE OR FALSE.

- a. If two triangles are congruent, they will cover each other exactly.
- b. If one side and **any** two angles of two triangles are respectively equal, they are congruent.
- c. Congruent triangles have the same perimeter.

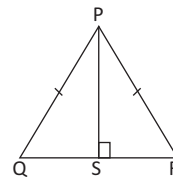
- d. If two triangles have the same perimeter, they are congruent.
- e. If two triangles satisfy the SAS condition of congruence, their third sides are also equal.

3. ANSWER THE FOLLOWING.

- a. Write the four congruent conditions for triangles.
- b. In each of the following, state the congruence in symbolic form and give the congruence property.



- c. Name the congruent sides if $\triangle XYZ \cong \triangle PQR$
- d. Prove that $\triangle PQS$ and $\triangle PRS$ are congruent.



- e. Prove that the diagonals of a square are equal.
- f. Prove that a median of an equilateral triangle is its height.

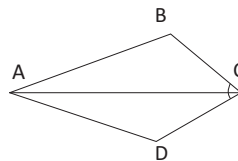
1. Write the condition for the following to be congruent:
 - a. Two rectangles: _____
 - b. Two circles: _____
2. Say true or false:
 - a. If the area of two squares are the same, they are congruent: _____
 - b. If the area of two rectangles are the same, they are congruent: _____
 - c. If the area of two triangles are the same, they are congruent: _____
 - d. If the area of two circles are the same, they are congruent: _____
3. List the four possible congruent conditions for triangles: _____, _____, _____, _____.
4. State the correspondence between the sides and angles of the congruent triangles $\triangle ABC \cong \triangle PQR$:

Angles: _____

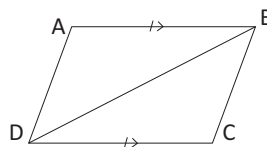
Sides: _____

5. Show that in an isosceles triangle, the angles opposite equal sides are equal.

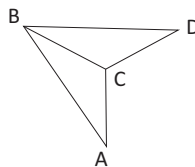
6. In the following figure, AC is the bisector of $\angle C$. Show that $\triangle ABC \cong \triangle ADC$.



7. In the following figure, $AB \parallel DC$ and $AB = DC$. Prove that $\triangle ABD \cong \triangle CDB$.



8. In the following figure, $\angle D = \angle A$ and $\angle BCD = \angle BCA$. Prove that $\triangle ABC \cong \triangle DCB$.



1. If 6 notebooks cost ₹57, find the price of 10 notebooks. _____
2. Seven florists can make 35 bouquets in an hour. How many such bouquets can 9 florists make in 2 hours? _____
3. A bus covers a distance of 288 km in 6 hours. How much time will it take to cover a distance of 480 km? _____
4. Convert the following as required:
 - a. 0.72 into percentage: _____
 - b. $\frac{3}{5}$ into percentage: _____
 - c. 40% into simplified fraction: _____
 - d. 65% into decimal: _____
5. Find the following:
 - a. 20% of 45 = _____
 - b. $66\frac{2}{3}\%$ of 1200 = _____
 - c. 55% of 600 = _____
 - d. 12% of 12 = _____
6. Express:
 - a. 220 mg as a percentage of 1 kg: _____
 - b. ₹60 as a percentage of ₹160: _____
 - c. 20 cm as a percentage of 80 cm: _____
 - d. 1 m as a percentage of 1 km: _____
7. Arun sold his two wheeler for ₹18,000, at a loss of 40%. What is the price at which he had bought it?

8. A vendor made a profit of 20% by selling apples at ₹140 per kg. At what price should he sell them to earn a profit of 26%?

9. Calculate the simple interest earned on ₹12,000 in 6 months at the rate of 8% per annum.

10. If a deposit of ₹10,000 amounts to ₹13,000 in 3 years, what is the rate of simple interest paid on it? Calculate the simple interest at the same rate on a deposit of ₹7000 for 2 years.

