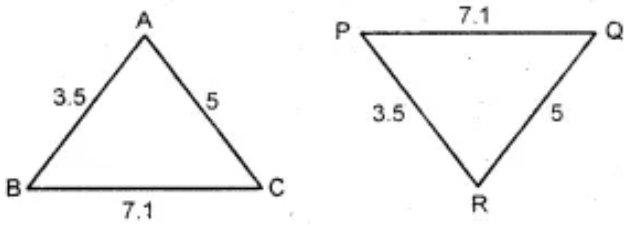
Congruence of Triangles

Question 1.
An angle is of 50° then its congruent angle is of:
(a) 40°
(b) 60°
(c) 50°
(d) None of these

Answer: (c) 50°
Two congruent angles are same in measurement.

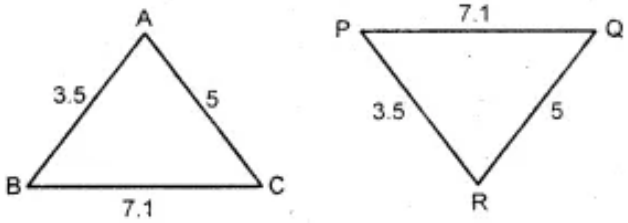
Question 2.
Given two triangles are congruent then we can write :



(a) ΔABC ≡ ΔPQR
(b) ΔABC ≡ ΔRPQ
(c) ΔABC ≡ ΔQRP
(d) none of these

Answer: (b) ΔABC ≡ ΔRPQ
These figures show that the three sides of one triangle are equal to the three sides of the other triangle. So by SSS congruency rule, the two triangles are congruent. It can easily seen that A <-> R, B <-> P and C <-> Q.

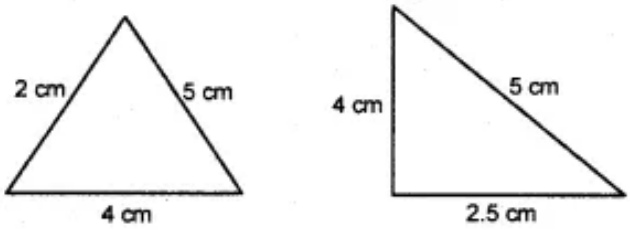
Question 3.
In the given figure, lengths of the sides of the triangles are given. Which pair of triangle are congruent ?



(a) ΔABC ≡ ΔPQR
(b) ΔBCA ≡ ΔPQR
(c) ΔABC ≡ ΔQRP
(d) none of these

Answer: (a) ΔABC ≡ ΔPQR
By SSS congruency rule

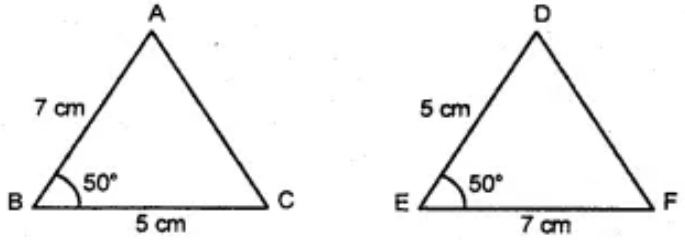
Question 4.
Are the following triangles congruent ?



(a) yes
(b) no
(c) none of these

Answer: (b) no
By SSS congruency two triangles are not congruent.

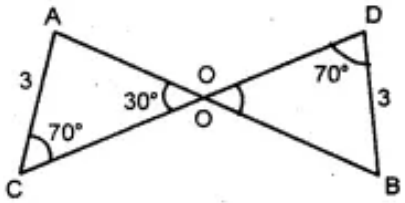
Question 5.
Are the following triangles congruent ?



(a) yes
(b) no
(c) none of these

Answer: (b) no
By SAS congruency two triangles are congruent.

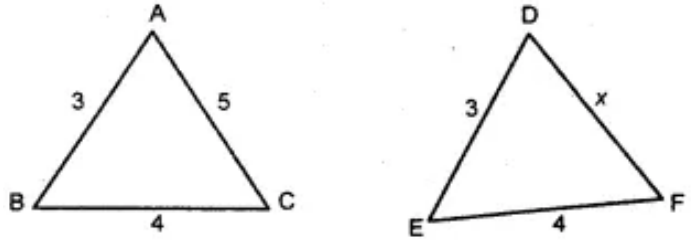
Question 6.
In the given figure, say congruency of two triangles.



(a) ΔAOC ∪ ΔBOD
(b) ΔAOC ≠ ΔBOD
(c) ΔAOC ∪ ΔOBD
(d) none of these

Answer: (a) ΔAOC ∪ ΔBOD
∠AOC = ∠BOD = 30°. Vertically opposite angles. .'. according to ASA congruency two triangles are congruent.

Question 7.
Given triangles are congruent, then what is the measurement of x ?



(a) 3
(b) 4
(c) 5
(d) none of these

Answer: (c) 5
By SSS congruency all the three sides of a triangle are equal.

Question 8.
Given below are measurements of some parts of two triangles. Write the result in symbolic form.
In ΔABC, ∠B = 90°, AC 8 cm AB = 3 cm and
ΔPQR ,∠P = 90°, PR = 3 cm QR = 8 cm

(a) $\Delta ABC \equiv \Delta RPQ$
(b) $\Delta ABC \equiv \Delta PQR$
(c) $\Delta ABC \equiv \Delta RPQ$
(d) none of these

Answer: (a) $\Delta ABC \equiv \Delta RPQ$
By RHS congruency two triangles are congruent and according to their corresponding parts.

Question 9.
Given below are measurements of some parts of two triangles. Write the result in symbolic form if they are congruent.
In ΔABC,
$\angle A = 90°$, AC = 5 cm, BC = 9 cm
In APQR,
$\angle P = 90°$, PR = 3 cm QR = 8 cm
(a) are congruent
(b) are not congruent

Answer: (b) are not congruent
Are not congruent as hypotenuses are not equal.

Question 10.
ΔABC and ΔPQR are congruent under the correspondence: ABC ↔ RPQ, then the part of ΔABC that correspond to PQ is
(a) AC
(b) AB
(c) BC
(d) None of These

Answer: (c) BC

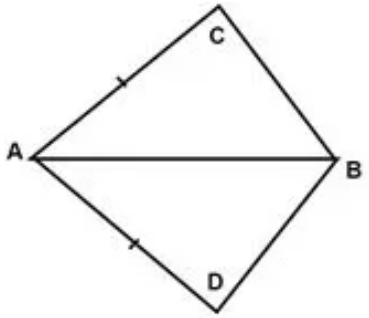
Question 11.
ΔABC is right triangle in which $\angle A = 90°$ and AB = AC. The values of $\angle B$ and $\angle C$ will be
(a) $\angle B = \angle C = 30°$
(b) $\angle B = \angle C = 50°$
(c) $\angle B = \angle C = 45°$
(d) $\angle B = \angle C = 60°$

Answer: (c) $\angle B = \angle C = 45°$

Question 12.
Two students drew a line segment each. What is the condition for them to be congruent?
(a) They should be drawn with a scale.
(b) They should be drawn on the same sheet of paper.
(c) They should have different lengths.
(d) They should have the same length.

Answer: (d) They should have the same length.

Question 13.
In the quadrilateral ABCD, AC = AD and AB bisect ∠A and ΔABC ≅ ΔABD. The relation between BC and BD is



(a) BC < BD
(b) BC > BD
(c) BC = BD
(d) None of these

Answer: (c) BC = BD

Question 14.
A triangle in which all three sides are of equal lengths is called _____.
(a) Isosceles
(b) Equilateral
(c) Scalene
(d) None of these

Answer: (b) Equilateral

Question 15.
In ΔABC and ΔPQR, AB = 4 cm, BC = 5 cm, AC = 6 cm and PQ = 4 cm. QR = 5 cm. PR = 6 cm. then which of the following is true?
(a) ΔABC ≅ ΔQRP

(b) $\Delta ABC \cong \Delta PQR$
(c) $\Delta ABC \cong \Delta RQP$
(d) None of these

Answer: (b) $\Delta ABC \cong \Delta PQR$

Question 16.
If the vertical angle of an isosceles triangle is 40°, then measure of other two angles will be
(a) 60°, 60°
(b) 80°, 80°
(c) 70°, 70°
(d) 45°, 45°

Answer: (c) 70°, 70°

Question 17.
What is the side included between the angles A and B in ΔABC?
(a) AC
(b) BC
(c) AB
(d) None of these

Answer: (c) AB

Question 18.
What comes next in the sequence: 2, 4, 10, 28, ___ ?
(a) 64
(b) 70
(c) 76
(d) 82

Answer: (d) 82

Question 19.
What is the angle included between the sides PN and PM of ΔMNP?
(a) $\angle M$
(b) $\angle N$
(c) $\angle P$
(d) None of these

Answer: (c) ∠P

Question 20.
Which of the following examines the congruence of plane figures?
(a) Trial and error method
(b) Superposition method
(c) Substitution method
(d) Transposition method

Answer: (b) Superposition method

Question 21.
The measure of each angle of an equilateral triangle is:
(a) 50°
(b) 70°
(c) 60°
(d) 100°

Answer: (c) 60°

Question 22.
If ΔDEF ≅ ΔBCA, then the part of ΔBCA that correspond to ∠E is
(a) ∠B
(b) ∠C
(c) ∠A
(d) None of these

Answer: (b) ∠C

Question 23.
Which angle is included between the sides DE and EF of △DEF?
(a) ∠F
(b) ∠D
(c) ∠E
(d) None of these

Answer: (c) ∠E

Question 24.
In ΔABC and ΔDEF, AC = DF,AB = DE and BC=EF. By which property are ΔABC and ΔDEF congruent?
(a) R.H.S. property
(b) S.S.S. property
(c) S.A.S. property
(d) A.S.A. property

Answer: (b) S.S.S. property

Question 25.
Two triangles, A PQR and ADEF are of the same size and shape. What can we conclude about them?
(a) ΔPQR is smaller than ΔDFE.
(b) ΔPQR is larger than ΔDFE.
(c) ΔPQR is congruent to ΔDFE.
(d) ΔPQR is not congruent to ΔDFE.

Answer: (c) ΔPQR is congruent to ΔDFE.

Question 26.
ΔABC and ΔPQR are congruent under the correspondence: ABC ↔ RQP, then the part of ΔABC that correspond to ∠P is
(a) ∠A
(b) ∠C
(c) ∠B
(d) None of these

Answer: (b) ∠C

Question 27.
Two angles are congruent if they have
(a) Same name
(b) unequal measures
(c) equal measures
(d) none of these

Answer: (c) equal measures

Match the following:

Question 1.

1. Shaving blades of the same company	a. Not congruent
2. Sheets of different letter pad	b. Congruent
3. Toys made of the same mould	c. Not congruent
4. Biscuits in the different packets	d. Congruent

Answer:

1. Shaving blades of the same company	d. Congruent
2. Sheets of different letter pad	a. Not congruent
3. Toys made of the same mould	b. Congruent
4. Biscuits in the different packets	c. Not congruent

Question 2.

1. Two angles are congruent	a. Having same length
2. Two lengths are congruent	b. Having same measurement
3. Two triangles are congruent	c. Triangles are not congruent
4. All angles are equals	d. Have all sides equal

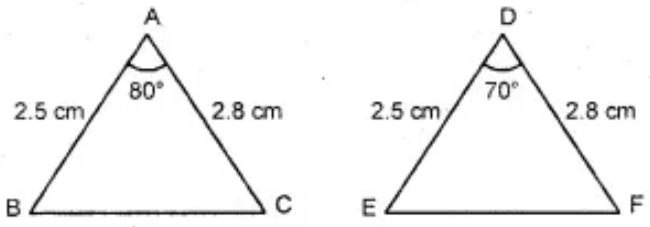
Answer:

1. Two angles are congruent	b. Having same measurement
2. Two lengths are congruent	a. Having same length
3. Two triangles are congruent	d. Have all sides equal
4. All angles are equals	c. Triangles are not congruent

State true or false:

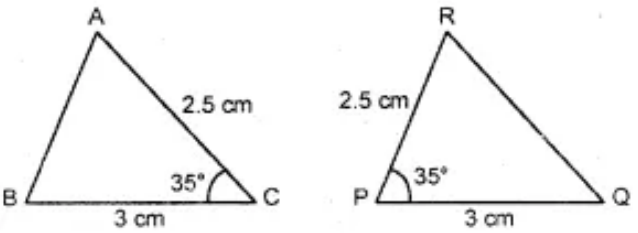
Given triangles are congruent:

Question 1.



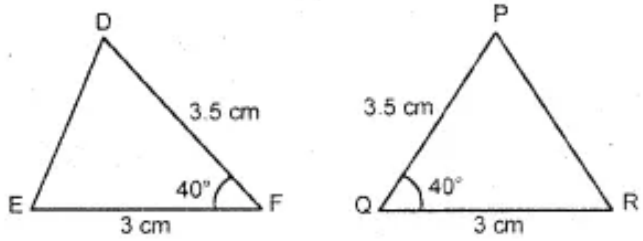
Answer: false

Question 2.



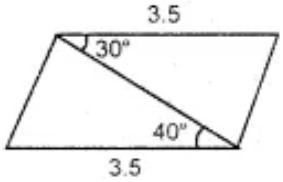
Answer: true

Question 3.



Answer: true

Question 4.



Answer: false

Fill in the blanks:

1. If two line segments have the same …….. they are congruent.

Answer: length

---

2. If two angles have the same ……. they are congruent.

Answer: measure

---

3. Among two congruent angles, one has a measure of 70°; the measures of the other angle is …….

Answer: 70°

---

4. When we write ∠A = ∠B, we actually mean ……

Answer: m∠A = m∠B

---

5. Two triangles are congruent if they are …… of each other and when …… (copies, superposed)

Answer: copies, superposed

---

6. If under a given correspondence, the three sides of one triangle are equal to the three corresponding sides of another triangle, then the triangles are…….

Answer: congruent

---

7. If under a correspondence two sides and the angle included between them of a triangle are equal to two corresponding sides and the angle included between them of another triangle, the triangles are …….

Answer: congruent

---

8. If under a correspondence two angles and the included side of a triangle are equal to two corresponding angles and the included side of another triangle, then the triangles are ……

Answer: congruent

---

9. If under a correspondence the hypotenuse and one side of a right-angled triangle are respectively equal to the hypotenuse and one-side of another right angled triangle, then the triangles are ……

Answer: congruent

---

10. There is no such thing as AAA of two triangles.

Answer: congruence
