Exercise No. 7.1

Multiple Choice Questions:

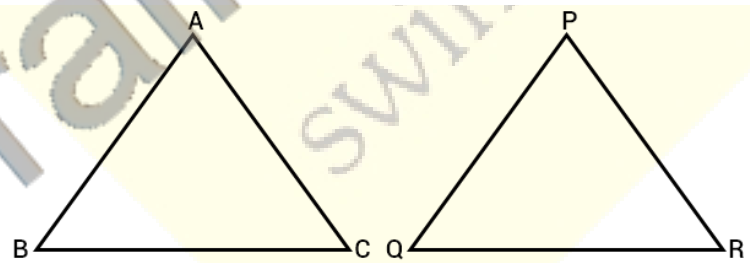
In each of the following, write the correct answer:

1. Which of the following is not a criterion for congruence of triangles?
(A) SAS
(B) ASA
(C) SSA
(D) SSS

Solution:
SSA is not a criterion for congruence of triangles.
Hence, the correct option is (C).

2. If AB = QR, BC = PR and CA = PQ, then
(A) $\Delta ABC \cong \Delta PQR$
(B) $\Delta CBA \cong \Delta PRQ$
(C) $\Delta BAC \cong \Delta RPQ$
(D) $\Delta PQR \cong \Delta BCA$

Solution:



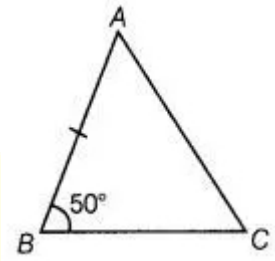
Given:
AB=QR, BC=PR and CA=PQ, then
The vertices are one-one corresponding that is P corresponding to C, Q to A and R to B, which is written as:
$P \leftrightarrow C, Q \leftrightarrow A, R \leftrightarrow B$

Under that correspondence, we have:
$\Delta CBQ \cong \Delta PRQ$
Hence, the correct option is (B).

3. In ΔABC, AB = AC and $\angle B = 50°$. Then $\angle C$ is equal to
(A) 40°

(B) 50°
(C) 80°
(D) 130°

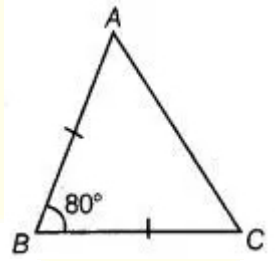
Solution:
According to the question, triangle ABC is:



AB=AC [Given]
So, $\angle C = \angle B$ [Angles opposite to equal sides are equal]
Given: $\angle B = 50°$. So, $\angle C = 50°$
Hence, the correct option is (B).

4. In ΔABC, BC = AB and $\angle B = 80°$. Then $\angle A$ is equal to
(A) 80°
(B) 40°
(C) 50°
(D) 100°

Solution:
In triangle ABC:



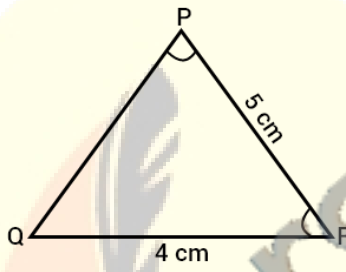
BC=AB [given]
$\angle A = \angle C$ [Since, angles opposite to equal sides are equal]
$\angle B = 80°$

Therefore, $\angle A + \angle B + \angle C = 180°$
$\angle A + 80° - \angle A = 180°$
$2\angle A = 100°$
$\angle A = \frac{100°}{2}$
$\angle A = 50°$

Hence, the correct option is (C).

5. In ΔPQR, $\angle R = \angle P$ and QR = 4 cm and PR = 5 cm. Then the length of PQ is
(A) 4 cm
(B) 5 cm
(C) 2 cm
(D) 2.5 cm

Solution:
In triangle PQR:

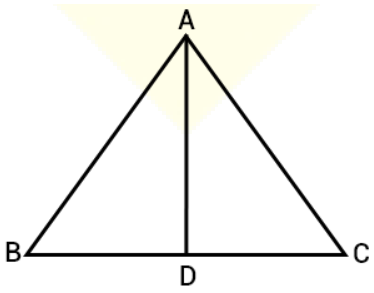


$\angle R = \angle P$ [Given]
PQ = QR [Sides opposite to equal angles are equal]

Now, QR=4cm, therefore, PQ=4cm.
Therefore, the length of the PQ is 4cm
Hence, the correct option is (A).

6. D is a point on the side BC of a ΔABC such that AD bisects $\angle BAC$. Then
(A) BD = CD
(B) BA > BD
(C) BD > BA
(D) CD > CA

Solution:
In triangle ADC,



Ext.$\angle ADB >$ Int. opp $\angle DAC$
$\angle ADB > \angle BAD$ [Because: $\angle BAD = \angle DAC$]

$AB > BD$ [Side opposite to greater angle is longer]
Hence, the correct option is (B).

7. It is given that $\Delta ABC \cong \Delta FDE$ and AB = 5 cm, $\angle B = 40°$ and $\angle A = 80°$. Then which of the following is true?

(A) $DF = 5$ cm, $\angle F = 60°$

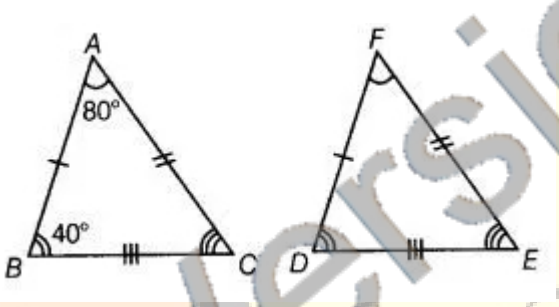
(B) $DF = 5$ cm, $\angle E = 60°$

(C) $DE = 5$ cm, $\angle E = 60°$

(D) $DE = 5$ cm, $\angle D = 60°$

Solution:

Given: $\Delta ABC \cong \Delta FDE$ and AB = 5 cm, $\angle B = 40°$ and $\angle A = 80°$



DF =AB [By CPCT]
DF =5cm
$\angle E = \angle C$ [By CPCT]
$\angle E = \angle C = 180° - (\angle A + \angle B)$ [By angle sum property of a triangle ABC]
$\angle E = 180° - (80° + 40°)$
$\angle E = 60°$

8. Two sides of a triangle are of lengths 5 cm and 1.5 cm. The length of the third side of the triangle cannot be

(A) 3.6 cm

(B) 4.1 cm

(C) 3.8 cm

(D) 3.4 cm

Solution:

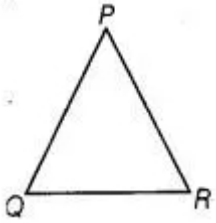
Sum of any two sides of a triangle is greater than third side. So, third side of the triangle cannot be 3.4 cm because then,
1.5cm+3.4cm=4.9 cm<third side [5cm]
Hence, the correct option is (D).

9. In ΔPQR, if $\angle R > \angle Q$, then

(A) QR > PR

(B) PQ > PR
(C) PQ < PR
(D) QR < PR

Solution:
Given: In triangle PQR,
$\angle R > \angle Q$

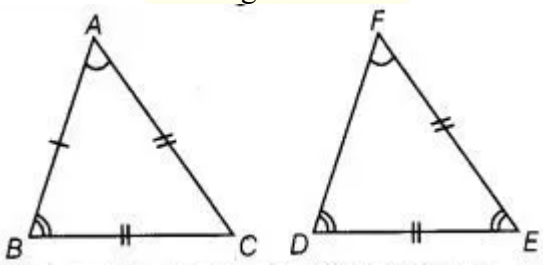


PQ>PR [side opposite to greater angle is longer]
Hence, the correct option is (B).

10. In triangles ABC and PQR, AB = AC, $\angle C = \angle P$ and $\angle B = \angle Q$. The two triangles are
(A) isosceles but not congruent
(B) isosceles and congruent
(C) congruent but not isosceles
(D) neither congruent nor isosceles

Solution:
In triangle ABC,
AB=AC [Given]
$\angle C = \angle B$ [Angles opposite to equal sides are equal]
So, in triangle ABC is an isosceles triangle.
$\angle B = \angle Q$ [Given]
$\angle C = \angle P$
$\angle P = \angle Q$ [Since, $\angle C = \angle B$]
QR=PR [Sides opposite to equal angles are equal]

So, in triangle PQR is also an isosceles triangle.



Hence, both triangle are isosceles but not congruent.
Hence, the correct option is (A).

11. In triangles ABC and DEF, AB = FD and $\angle A = \angle D$. The two triangles will be congruent by SAS axiom if

(A) BC = EF

(B) AC = DE

(C) AC = EF

(D) BC = DE

Solution:

Given, in ΔABC and ΔDEF, AB = DF and $\angle A = \angle D$

As we know that, two triangles will be congruent by ASA rule, if two angles and the included side of one triangle are equal to the two angles and the included side of other triangle.

Since, AC = DE

Hence, the correct option is (B).