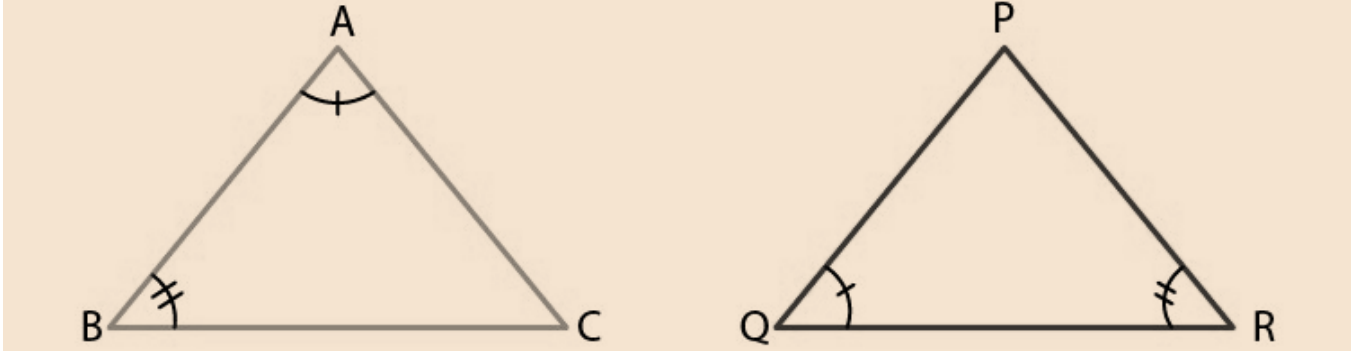


EXERCISE 7.2

In triangles ABC and PQR,

$\angle A = \angle Q$ and $\angle B = \angle R$. Which side of ΔPQR should be equal to side AB of ΔABC so that the two triangles are congruent? Give reason for your answer.

Solution:



In triangle ABC and PQR, we have

$$\angle A = \angle Q \text{ [Given]}$$

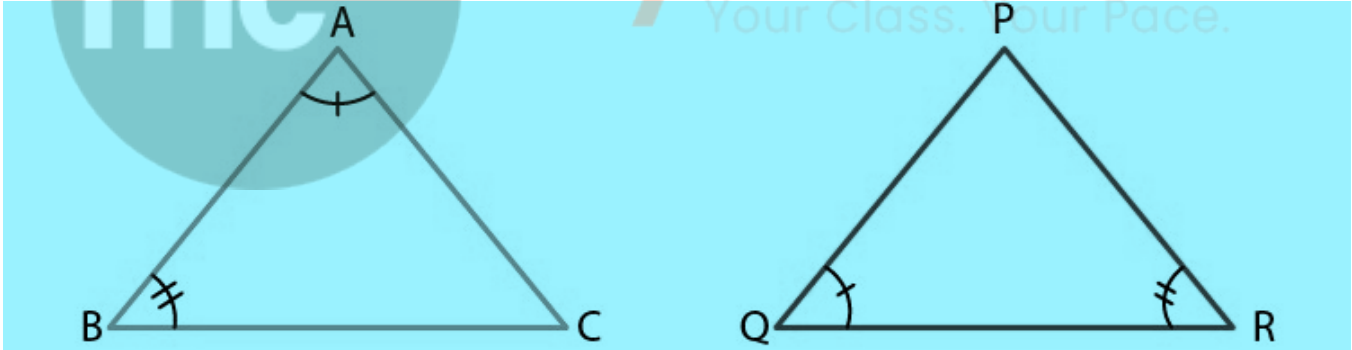
$$\angle B = \angle R \text{ [Given]}$$

For the triangle to be congruent, AB should be equal to QR.

Hence, triangle ABC and PQR can be congruent by ASA congruence rule.

1. In triangles ABC and PQR, $\angle A = \angle Q$ and $\angle B = \angle R$. Which side of ΔPQR should be equal to side BC of ΔABC so that the two triangles are congruent? Give reason for your answer.

Solution:



In triangle ABC and PQR, we have

$$\angle A = \angle Q \text{ and } \angle B = \angle R \text{ [Given]}$$

For the triangles to be congruent, we must have

$$BC = RP$$

Hence, triangle ABC and PQR will be congruent by AAS congruence rule.

2. “If two sides and an angle of one triangle are equal to two sides and an angle of another triangle, then the two triangles must be congruent.” Is the statement true? Why?

Solution:

No, the statement, “if two sides and an angle of one triangle are equal to two sides and an angle of another triangle, then the two triangles must be congruent” is false.

Justification:

Because by the congruent rule,

The two sides and the included angle of one triangle are equal to the two sides and the included angle of the other triangle, i.e., SAS rule.

3. “If two angles and a side of one triangle are equal to two angles and a side of another triangle, then the two triangles must be congruent.” Is the statement true? Why?

Solution:

The statement, “If two angles and a side of one triangle are equal to two angles and a side of another triangle, then the two triangles must be congruent.” is true.

Justification:

The statement is true because, the triangles will be congruent either by ASA rule or AAS rule. This is because two angles and one side are enough to construct two congruent triangles.

4. Is it possible to construct a triangle with lengths of its sides as 4 cm, 3 cm and 7 cm? Give reason for your answer.

Solution:

No, it is not possible to construct a triangle with lengths of sides 4 cm, 3 cm and 7 cm.

Justification:

We know that,

Sum of any two sides of a triangle is always greater than the third side.

Here, the sum of two sides whose lengths are 4 cm and 3 cm = 4 cm + 3 cm = 7 cm,

Which is equal to the length of third side, i.e., 7 cm.

Hence, it is not possible to construct a triangle with lengths of sides 4 cm, 3 cm and 7 cm.

5. It is given that $\triangle ABC \cong \triangle RPQ$. Is it true to say that $BC = QR$? Why?

Solution:

It is False that $BC = QR$ because $BC = PQ$ as $\triangle ABC \cong \triangle RPQ$.