GCSE Maths – Geometry and Measures

Congruent Triangles

Worksheet

NOTES

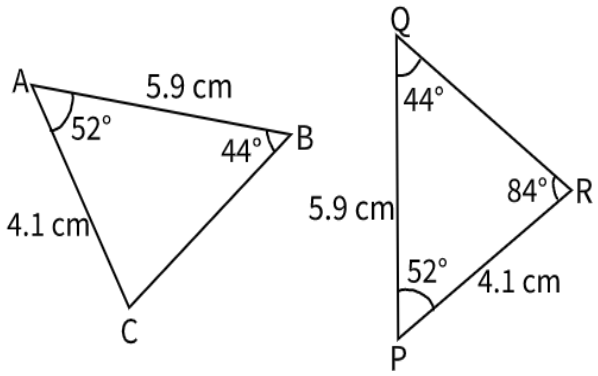
SOLUTIONS

This worksheet will show you how to work out questions relating to congruent triangles questions. Each section contains a worked example, a question with hints and then questions for you to work through on your own.

Section A

Worked Example

Are triangles ABC and PQR congruent? Explain your answer.



Step 1: Draw similarities between triangles ABC and PQR.

$$\angle CAB = 52°$$
$$\angle QPR = 52°$$

So,

$$\angle CAB = \angle QPR$$

$$\angle ABC = 44°$$
$$\angle PQR = 44°$$

So,

$$\angle ABC = \angle PQR$$

$$AB = 5.9\ cm,$$
$$PQ = 5.9\ cm$$

So,

$$AB = PQ$$

Step 2: Use the information to decide if you can prove any of the four conditions for congruency.

We have deduced that the triangles have two pairs of angles which are equal:

$$\angle CAB = \angle QPR$$
$$\angle ABC = \angle PQR$$

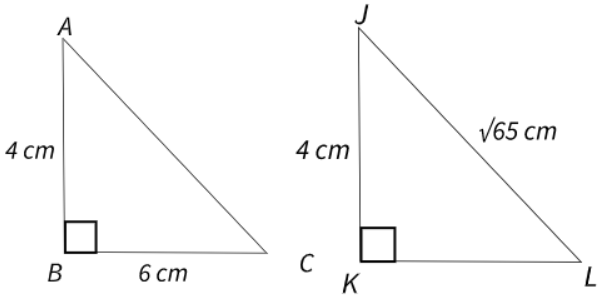
*We have shown the corresponding side **between** the angles is the same:*

$$AB = PQ$$

*Therefore, the condition **ASA** has been met. The triangles are **congruent**.*

Guided Example

Are triangles ABC and JKL congruent? Explain your answer.



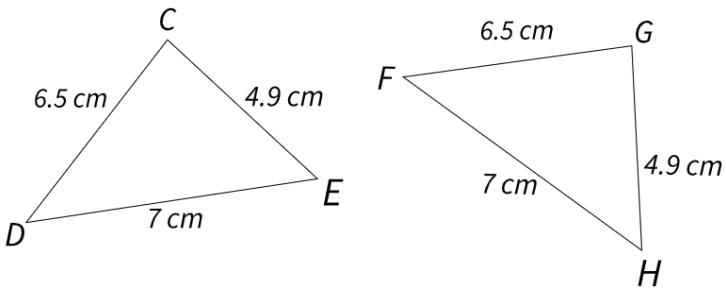
Step 1: Draw similarities between triangles ABC and JKL, calculating the length of side AC so the longest sides can be compared.

Step 2: Use the information to decide if you can prove the RHS condition for congruence.

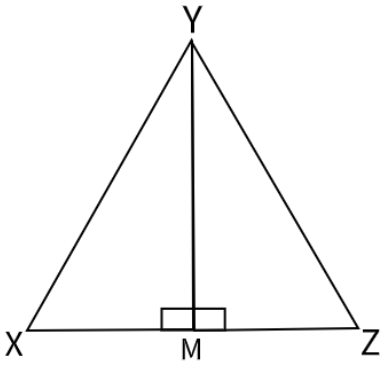
Now it's your turn!
If you get stuck, look back at the worked and guided examples.

1. Are the following sets of triangles congruent? Explain your answer.

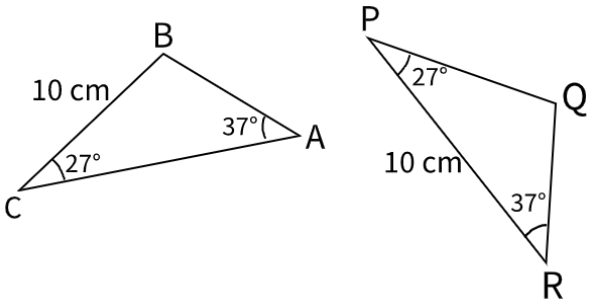
a)



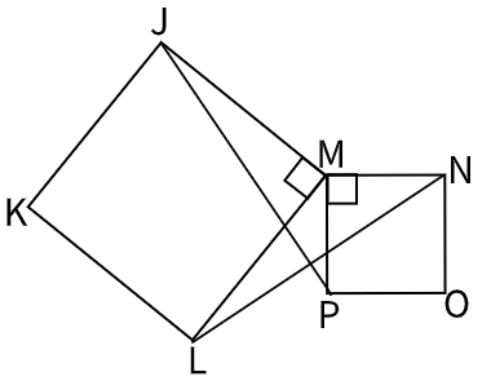
b) Triangles XYM and YMZ



c)



d) Given $JKLM$ and $MNOP$ are squares, Triangles JPM and LMN



e) Triangles AOC and BOD