Congruent triangle proof steps for Grade 9

Practice worksheet - Maths · Grade 9

Name: _____ Date: _____

Show your working. Answers and explanations follow on a separate page.

Try each task before opening its answer. Give an example or reason, not only a label.

Write an answer and your reason before opening the explanation. Check the reasoning as well as the final answer.

1. Three corresponding equal sides give which condition?

2. Two sides and their included angle?

3. Two angles and the included side?

4. If ABC matches PQR, which side matches AC?

5. If triangle ABC corresponds to triangle PQR in that order, which angle matches angle C?

6. Why can AC=AC appear in a proof?

7. Where is the hypotenuse?

8. For two right triangles, do equal hypotenuses alone prove congruence?

Practice continued

9. Does AAA prove congruence?

10. Does any two sides and any angle guarantee congruence?

11. Can a side be declared equal because it looks equal?

12. If A↔R, B↔P, C↔Q, complete ABC≅___.

13. Can corresponding parts be used before congruence is proved?

14. Why can two angles and a non-included corresponding side determine congruence?

Answers and explanations

Answer key - Maths · Grade 9

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1. SSS.
All three side pairs are known.
2. SAS.
The angle must lie between those sides.
3. ASA.
The stated side connects the angle vertices.
4. PR.
A matches P and C matches R.
5. R.
Read the order.
6. It is a shared side.
A segment equals itself.
7. Opposite the right angle.
Its location follows from the right angle.
8. No.
A right angle and another corresponding side equality are needed.
9. No.
Size can differ.
10. No.
A non-included angle can leave ambiguous configurations.
11. No.
Use a given mark or valid deduction.
12. RPQ.
Preserve the correspondence order.
13. Not as the justification for that same congruence.
That would be circular.
14. The third angle follows from 180°, allowing an ASA argument.
The side and angle correspondences must still match.