

Congruence

Congruence criteria, corresponding parts, and rigid-motion reasoning.

Name _____ Date _____

32 main 2-up grid 3 pages

Completion Reward



Shown here as a small pack artifact, not a preview destination.

1. What does CPCTC stand for?

- A. Coordinate Points of Congruent Triangles are Constant
- B. Congruent Proofs Create Triangle Congruence
- C. Corresponding Parts of Congruent Triangles are Congruent
- D. Common Perimeters of Congruent Triangles are Constant

2. Two triangles are mirror images of each other. Are they congruent?

- A. Yes, because a reflection is a rigid motion.
- B. No, because the orientation changes.
- C. Only if their areas are both 1.
- D. Only if they point upward.

3. If three pairs of corresponding sides are congruent, which theorem proves the triangles are congruent?

- A. SAS
- B. ASA
- C. SSS
- D. SSA

4. If two angles and a non-included side are congruent, which theorem applies?

- A. ASA
- B. AAS
- C. SAS
- D. HL

5. Which theorem only works for right triangles?

- A. SAS
- B. SSS
- C. ASA
- D. HL

6. Which statement describes congruent figures?

- A. They have the same shape but different size.
- B. They have the same size and the same shape.
- C. They have equal area only.
- D. They lie on the same line.

7. Why is AAA not enough to prove congruence?

- A. Triangles do not need angles to be congruent.
- B. AAA always proves the triangles are perpendicular.
- C. Angles can match while the triangles are different sizes.
- D. AAA only works for circles.

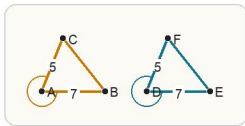
8. If triangle ABC is congruent to triangle PQR, which vertex corresponds to B?

- A. P
- B. R
- C. A
- D. Q

9. Which theorem uses two angles and the included side?

- A. AAS
- B. SAS
- C. ASA
- D. SSS

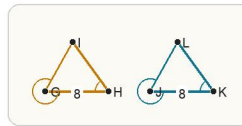
10. Which theorem proves the two triangles congruent?



Matching two sides and the angle between them is enough for SAS congruence.

- A. SAS
- B. AAA
- C. SSA
- D. SSA or AAA

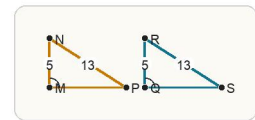
11. Which theorem proves the two triangles congruent?



Matching two angles and the side between them is ASA.

- A. SSS
- B. ASA
- C. HL
- D. SSA

12. Why are these right triangles congruent?



For right triangles, HL uses one matching leg and one matching hypotenuse.

- A. AAA
- B. SSA
- C. Because they face the same direction
- D. HL

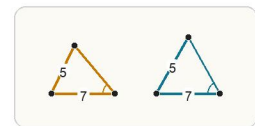
13. You already know two pairs of corresponding sides are congruent. What extra information would let you use SAS?

- A. A third side is longer.
- B. The included angles are congruent.
- C. The triangles have equal area.
- D. One triangle is translated.

14. Two right triangles have congruent hypotenuses and one pair of congruent legs. What can you conclude next?

- A. The triangles are similar by AA.
- B. The triangles are congruent by HL.
- C. The triangles are not related.
- D. Only one angle can be equal.

15. A student says the triangles in the figure are congruent by SSA. What is the problem?



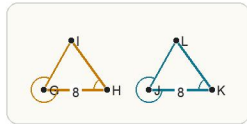
Two sides and a non-included angle can produce more than one triangle, so SSA is not a valid congruence theorem.

- A. SSA is not a valid congruence theorem because the angle is not included between the known sides.
- B. SSA is always stronger than SSS, so there is no problem.
- C. You only need one side to prove congruence.
- D. Two angles are missing, so no geometry theorem can ever apply.

16. A student says two sides and a non-included angle prove two triangles congruent. What is the issue?

- A. The triangles must be similar instead.
- B. You need exactly three angles.
- C. SSA is not a valid general congruence theorem.
- D. Congruence never uses sides.

19. If triangle ABC is congruent to triangle DEF and angle C = 42, what is angle F? Answer with a number.



Matching two angles and the side between them is ASA.

22. If two triangles have three pairs of matching side lengths, which theorem applies?

- A. ASA
- B. AAS
- C. SSS
- D. HL

25. A student says two triangles are congruent because they look identical in the diagram. What is missing?

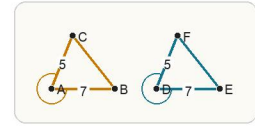
- A. The triangles must be colored the same.
- B. The angles must all be right angles.
- C. The triangles must sit on the x-axis.
- D. A valid theorem and marked information are needed; appearance alone is not enough.

17. A student reads triangle ABC congruent to triangle DEF and matches AB with EF. What went wrong?

- A. AB should be matched with CD.
- B. The student should have matched angles only.
- C. The student ignored the order of the vertices.
- D. Congruence statements never show correspondence.

20. If triangle ABC is congruent to triangle DEF and AB = 12, what is DE? Answer with a number.

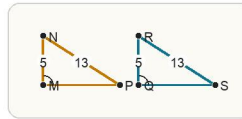
18. If triangle ABC is congruent to triangle DEF and AB = 7, what is DE? Answer with a number.



Matching two sides and the angle between them is enough for SAS congruence.

21. If triangle ABC is congruent to triangle DEF and angle C corresponds to angle F, what is m angle C when m angle F = 41? Answer with a number.

23. Before using HL, what fact must you know?



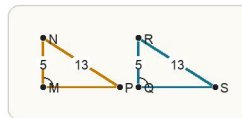
For right triangles, HL uses one matching leg and one matching hypotenuse.

- A. Both triangles are right triangles.
- B. The triangles must share a midpoint.
- C. Both legs must be congruent.
- D. The included angle must already be 90 degrees in both triangles.

24. Two triangles share side AC. What is the strongest next statement you may write?

- A. AC is perpendicular to AC.
- B. AC has slope 0.
- C. AC is the longest side.
- D. AC is congruent to AC by the reflexive property.

26. In congruent right triangles, one acute angle measures 33 degrees. What is the corresponding acute angle in the other triangle? Answer with a number.



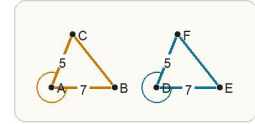
For right triangles, HL uses one matching leg and one matching hypotenuse.

27. Two corresponding sides are congruent. One side is $x + 3$ and the matching side is 11. What is x ? Answer with a number.

28. A triangle congruent to triangle XYZ has angle measures 60 and 45. What is the measure of the third angle? Answer with a number.

29. Two corresponding angles are congruent. One angle measures $x + 18$ and the other measures 47. What is x ? Answer with a number.

30. Triangle ABC is congruent to triangle DEF. If $DE = 5$, $EF = 6$, and $FD = 7$, what is the perimeter of triangle ABC? Answer with a number.

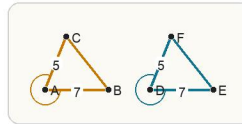


Matching two sides and the angle between them is enough for SAS congruence.

31. Student A uses HL on two non-right triangles. Student B says HL does not apply. Who is correct?

- A. Student A
- B. Student B
- C. Both students
- D. Neither student

32. Which statement is the strongest justification?



Matching two sides and the angle between them is enough for SAS congruence.

- A. The triangles are congruent because they look about the same size.
- B. The triangles are congruent because both have three sides.
- C. The triangles are congruent because the marked sides and included angle match, so SAS applies.
- D. The triangles are congruent because all triangles are congruent after rotation.