

Congruence of Triangles

Chapter 7: Triangles · Topic 1

Key Concept

Importantly, AAA (all three angles equal) does NOT guarantee congruence, only similarity — two triangles can have identical angles but be different sizes (like a small and large equilateral triangle), demonstrating why angle-only matching is insufficient to prove congruence. These congruence criteria are essential tools throughout geometry for proving that two triangles are truly identical, used extensively in more complex geometric proofs involving quadrilaterals, circles, and other shapes.

Quick Revision Notes

- Congruence criteria: SSS, SAS, ASA, AAS, and RHS (for right triangles).
- SSS: three sides equal. SAS: two sides + included angle equal.
- AAA (all angles equal) does NOT prove congruence, only similarity.
- Congruence criteria are used extensively in geometric proofs.

Practice Questions

- 1 State which congruence criterion applies if two angles and the included side are equal in two triangles.
- 2 Explain why AAA does not prove that two triangles are congruent.
- 3 Given two triangles with all three sides equal, state the congruence criterion that applies.