

Criteria for Similarity of Triangles

Chapter 6: Triangles · Topic 1

Key Concept

The AA criterion is particularly powerful and efficient, since if just two angles of one triangle equal two angles of another, the third angles must also be equal (since all triangle angles sum to 180°), guaranteeing similarity without needing to check any side lengths at all. Similar triangles have countless applications, from indirect height measurement (like finding a tall building's height using its shadow and a similar smaller object's shadow) to map-making and scale models.

Quick Revision Notes

- Similar triangles have equal corresponding angles and proportional corresponding sides.
- Similarity criteria: AA (two angles equal), SSS (sides proportional), SAS (two sides proportional + included angle equal).
- AA is efficient since equal third angles are guaranteed by the angle sum property.
- Similar triangles are used in indirect height measurement, mapping, and scale models.

Practice Questions

- 1 State the AA criterion for similarity of triangles.
- 2 Explain how similar triangles can be used to find the height of a tall tree using shadows.
- 3 If two triangles have angles 50° , 60° , 70° and 50° , 60° , 70° respectively, state whether they are similar and why.