

Properties of Triangles

Chapter 7: Triangles · Topic 2

Key Concept

This triangle inequality can be checked quickly: for sides 3, 4, 5, we verify $3+4>5$ ($7>5$, true), $3+5>4$ (true), and $4+5>3$ (true) — all conditions hold, so a valid triangle can be formed. If any one of these conditions fails (like trying to form a triangle with sides 2, 3, 6, where $2+3=5$ is NOT greater than 6), no valid triangle exists — the two shorter sides simply cannot 'reach' to close the triangle shape.

Quick Revision Notes

- Triangle inequality: the sum of any two sides must be greater than the third side.
- The angle opposite the longest side is the largest angle in the triangle.
- Sides 3,4,5 satisfy the triangle inequality ($3+4>5$, etc.) and can form a valid triangle.
- Sides 2,3,6 fail the inequality ($2+3$ is not >6) and cannot form a valid triangle.

Practice Questions

- 1 Check if sides of length 3,4,5 can form a triangle.
- 2 Determine if sides 2cm, 3cm, and 6cm can form a valid triangle.
- 3 In a triangle with sides 5,7,9, identify which angle is the largest, based on the sides.