

Congruence and geometric reasoning

Pearson Edexcel GCSE Mathematics 1MA1 • L027

Foundation and Higher • Lesson resources

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Purpose

Select a valid triangle congruence criterion and use corresponding parts to build a short proof.

Vocabulary

Congruent: same shape and size. Corresponding: matching position in the two figures. Included angle: between two specified sides. Hypotenuse: side opposite a right angle. Proof: a justified chain of statements.

Why the method works

SSS fixes all three sides; SAS fixes two sides and their included angle; ASA fixes two angles and the side between them. RHS fixes a right angle, hypotenuse and another side. A rigid movement can then match the triangles. AAA fixes shape but permits different sizes. SSA is not a general congruence test.

Method and checking

Write vertices in corresponding order. List each equality with its given reason, name the criterion, then deduce equal matching parts. A shared side equals itself; a picture is not proof.

Common errors and next attempt

If SAS is claimed with a non-included angle, mark the two sides and the angle between them. If AAA is used, compare 3,4,5 with 6,8,10 triangles. Recheck a proof with a shared side.