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Similarity and Congruence

Student Worksheet

Questions & Working Space

IGCSE Mathematics

Name: _____

Date: _____

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Note

How to use this worksheet. These questions are built *strictly* on the *Similarity and Congruence* notes: congruent shapes and the correspondence of letters, the four congruence conditions (SSS, SAS, ASA, RHS), similar shapes and scale factors, the three similarity conditions for triangles (AA, SSS ratio, SAS ratio), and scale factors for area and volume.
Diagrams. Figures are printed with the questions and are *not* drawn to scale — always work from the given measurements, never by measuring the picture. Mark equal sides and equal angles on the diagrams as you go.
Working space. Ruled lines follow each question. In a proof, set your work out as a numbered list of matching pairs, each with its reason, and finish by naming the condition (SSS, SAS, ASA or RHS) and writing the congruence statement with the letters in corresponding order.
Checking your answers. Full step-by-step solutions, a marking scheme for the exam paper, and a quick answer key are in the separate booklet *"Similarity and Congruence — Solutions & Answer Key."* Try each question honestly before you look.

1 Part I — Topic-by-Topic Exercises

1.1 Congruent Shapes

Exercise C1 *[Basic]*

Pentagons $PQRST$ and $ABCDE$ are congruent, with $PQRST \cong ABCDE$. Given that $PQ = 6\,\text{cm}$, $QR = 9\,\text{cm}$ and $\angle R = 112°$, write down:

(a) AB (b) BC (c) $\angle C$

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Exercise C2 *[Basic]*

For each pair of shapes, state whether they must be *congruent*, *similar but not congruent*, or *neither*:

(a) two squares, each of side 5 cm

(b) two circles, of radii 3 cm and 7 cm

(c) a rectangle 4 cm by 6 cm and a rectangle 6 cm by 9 cm

(d) a rectangle 4 cm by 6 cm and a rectangle 5 cm by 7 cm

Exercise C3 *[Standard]*

Quadrilateral $WXYZ$ is congruent to quadrilateral $DEFG$. Given that $WX = 13\,\text{cm}$, $XY = 6\,\text{cm}$, $YZ = 10\,\text{cm}$, $ZW = 8\,\text{cm}$, $\angle X = 78^\circ$ and $\angle Y = 104^\circ$, find:

(a) DE (b) FG (c) $\angle E$ (d) $\angle F$ (e) the perimeter of $DEFG$

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Preview ends here

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