LESSON MAKER PRO

Shape Match Lab

Compare measures to find matching shapes.

GRADE 6 · 6.MG.4

6.MG.4 "The student will determine congruence of segments, angles, and polygons. Identify regular polygons. Draw lines of symmetry to divide regular polygons into two congruent parts. Determine the congruence of segments, angles..."

NAME _____ DATE _____

MATCHING MEASURES

Figures are congruent when all matching side lengths and angle measures are equal. A regular polygon has equal side lengths and equal angle measures. A regular n-gon has n lines of symmetry.

WORKED EXAMPLE

Triangle ABC has side lengths 5 cm, 7 cm, and 9 cm. Triangle DEF has side lengths 9 cm, 5 cm, and 7 cm. Are the triangles congruent?

1. Match the 5 cm side in each triangle.
2. Match the 7 cm side in each triangle.
3. Match the 9 cm side in each triangle.
4. All corresponding side lengths match.

Answer: Yes, triangle ABC is congruent to triangle DEF.

PRACTICE 6 problems

1 Segment AB is 13 cm long. Segment CD is 13 cm long. Are the segments congruent?

ANSWER _____

2 Angle J measures 42°. Angle K measures 42°. Are the angles congruent?

ANSWER _____

3 Triangle PQR has side lengths 3 cm, 4 cm, and 6 cm. Triangle XYZ has side lengths 6 cm, 3 cm, and 4 cm. Are the triangles congruent?

ANSWER _____

4 Quadrilateral WXYZ has side lengths, in order, of 8 cm, 12 cm, 8 cm, and 12 cm. Its angles are all 90°. Quadrilateral ABCD has side lengths, in order, of 12 cm, 8 cm, 12 cm, and 8 cm. Its angles are all 90°. Are the quadrilaterals congruent?

ANSWER _____

5 A hexagon has six sides that are each 10 cm long. Its six angles are each 120°. Is the hexagon regular?

ANSWER _____

6 How many lines of symmetry does a regular octagon have?

ANSWER _____

APPLY IT Show your work

1 A game club prints two rectangular leaderboard cards. Card A is 14 cm by 11 cm. Card B is 11 cm by 14 cm. Each card has four right angles. Are the cards congruent?

WORK SPACE

ANSWER _____

2 A coding club uses a regular decagon for an app badge. How many lines of symmetry does the badge have?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A regular 12-sided tile has lines of symmetry. Explain why six lines pass through pairs of opposite vertices and six lines pass through the midpoints of opposite sides. How many lines of symmetry does the tile have altogether?

_____

_____

ANSWER KEY

Shape Match Lab

GRADE 6 · 6.MG.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Segment AB is 13 cm long. Segment CD is 13 cm long. Are the segments congruent?	**Yes, segment AB is congruent to segment CD.**
2	Angle J measures 42°. Angle K measures 42°. Are the angles congruent?	**Yes, angle J is congruent to angle K.**
3	Triangle PQR has side lengths 3 cm, 4 cm, and 6 cm. Triangle XYZ has side lengths 6 cm, 3 cm, and 4 cm. Are the triangles congruent?	**Yes, triangle PQR is congruent to triangle XYZ.**
4	Quadrilateral WXYZ has side lengths, in order, of 8 cm, 12 cm, 8 cm, and 12 cm. Its angles are all 90°. Quadrilateral ABCD has side lengths, in order, of 12 cm, 8 cm, 12 cm, and 8 cm. Its angles are all 90°. Are the quadrilaterals congruent?	**Yes, quadrilateral WXYZ is congruent to quadrilateral ABCD.**
5	A hexagon has six sides that are each 10 cm long. Its six angles are each 120°. Is the hexagon regular?	**Yes, the hexagon is regular.**
6	How many lines of symmetry does a regular octagon have?	**8 lines of symmetry**

PART 2 · APPLY IT

1. **Yes, the cards are congruent.** Both cards have matching side lengths of 14 cm and 11 cm, and all matching angles are right angles. One card can be turned to cover the other.
2. **10 lines of symmetry** A regular polygon has the same number of lines of symmetry as sides. A decagon has 10 sides.

CHALLENGE

The tile has 12 lines of symmetry. Six lines pass through opposite vertices, and six lines pass through midpoints of opposite sides.

Accept equivalent statements such as "yes, congruent" when the figures match. For symmetry items, accept the correct number with a clear label such as "lines of symmetry."