

Match It Up

Use measurements to spot congruent figures.

GRADE 6 • 6.MG.4.c

6.MG.4.c "Determine the congruence of segments, angles, and polygons given their properties."

NAME _____

DATE _____

SAME SIZE, SAME SHAPE

Congruent figures have exactly the same size and shape. Segments are congruent when their lengths match, angles are congruent when their measures match, and polygons are congruent when matching sides and matching angles have the same measures, even if one figure is turned or flipped.

WORKED EXAMPLE

Rectangle A is 4 cm long and 6 cm wide. Rectangle B is 6 cm long and 4 cm wide. Are the rectangles congruent?

1. Rectangle A has side lengths of 4 cm and 6 cm, with four right angles.
2. Rectangle B has the same two side lengths, with four right angles.
3. Turning Rectangle B does not change its size or shape.

Answer: Yes, Rectangle A is congruent to Rectangle B.

PRACTICE 6 problems

- 1** Segment AB is 8 cm long. Segment CD is 8 cm long. Are the segments congruent?

ANSWER _____

- 2** Segment MN is 13 mm long. Segment PQ is 14 mm long. Are the segments congruent?

ANSWER _____

- 3** Angle A measures 38 degrees. Angle B measures 38 degrees. Are the angles congruent?

ANSWER _____

- 4** Angle C measures 72 degrees. Angle D measures 108 degrees. Are the angles congruent?

ANSWER _____

- 5** Triangle EFG has side lengths $EF = 5$ cm, $FG = 12$ cm, and $GE = 13$ cm. Triangle HIJ has side lengths $HI = 13$ cm, $IJ = 5$ cm, and $JH = 12$ cm. Are the triangles congruent? If yes, write a congruence statement.

ANSWER _____

- 6** Rectangle R is 11 cm long and 15 cm wide. Rectangle S is 15 cm long and 11 cm wide. Are the rectangles congruent?

ANSWER _____

APPLY IT Show your work

- 1** A gaming club orders two triangular fabric patches for team bags. Patch A has side lengths of 11 cm, 13 cm, and 15 cm. Patch B has side lengths of 15 cm, 11 cm, and 13 cm. Can the patches be cut from the same template?

WORK SPACE

ANSWER _____

- 2** A game designer makes two four-sided screen tiles. Tile A has side lengths of 10 cm, 14 cm, 10 cm, and 14 cm, with angle measures of 80 degrees, 100 degrees, 80 degrees, and 100 degrees. Tile B has the same side lengths, but its angle measures are 85 degrees, 95 degrees, 85 degrees, and 95 degrees. Are the tiles congruent?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Quadrilateral ABCD has consecutive side lengths of 7 cm, 9 cm, 7 cm, and 9 cm. Its consecutive angle measures are 70 degrees, 110 degrees, 70 degrees, and 110 degrees. Quadrilateral WXYZ has consecutive side lengths of 9 cm, 7 cm, 9 cm, and 7 cm. Its consecutive angle measures are 110 degrees, 70 degrees, 110 degrees, and 70 degrees. Are the quadrilaterals congruent? If yes, write a congruence statement and explain the matching order.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Segment AB is 8 cm long. Segment CD is 8 cm long. Are the segments congruent?	Yes, AB is congruent to CD.
2	Segment MN is 13 mm long. Segment PQ is 14 mm long. Are the segments congruent?	No, MN is not congruent to PQ.
3	Angle A measures 38 degrees. Angle B measures 38 degrees. Are the angles congruent?	Yes, angle A is congruent to angle B.
4	Angle C measures 72 degrees. Angle D measures 108 degrees. Are the angles congruent?	No, angle C is not congruent to angle D.
5	Triangle EFG has side lengths EF = 5 cm, FG = 12 cm, and GE = 13 cm. Triangle HIJ has side lengths HI = 13 cm, IJ = 5 cm, and JH = 12 cm. Are the triangles congruent? If yes, write a congruence statement.	Yes, triangle EFG is congruent to triangle IJH.
6	Rectangle R is 11 cm long and 15 cm wide. Rectangle S is 15 cm long and 11 cm wide. Are the rectangles congruent?	Yes, Rectangle R is congruent to Rectangle S.

PART 2 • APPLY IT

- Yes, the patches are congruent.** Both triangles have the same three side lengths. The side lengths are listed in a different order, but the triangles have the same size and shape.
- No, the tiles are not congruent.** The matching side lengths are the same, but the angle measures are different. Congruent polygons need matching side lengths and matching angle measures.

CHALLENGE

Yes. Quadrilateral ABCD is congruent to quadrilateral XYZW. Starting at X, the side lengths and angle measures match ABCD in the same order: 7, 9, 7, 9 and 70, 110, 70, 110.

Accept congruence statements with a correct matching vertex order, including a reversed order when corresponding sides and angles still match. Accept words such as rotated, turned, flipped, or reflected when students explain why orientation does not affect congruence.