LESSON MAKER PRO

Quad Property Detectives

Compare sides, angles, and diagonals in five quadrilaterals.

GRADE 7 · 7.MG.3.a.ii

7.MG.3.a.ii "Compare and contrast properties of the following quadrilaterals: parallelogram, rectangle, square, rhombus, and trapezoid: congruence of angle measures, side, and diagonal lengths; and"

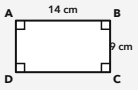
NAME _____ DATE _____

SPOT THE MATCHING PARTS

Congruent parts have exactly the same measure. Use side lengths, angle measures, diagonal lengths, and matching marks to compare quadrilaterals. Check only properties guaranteed by the shape's name, because a drawing may look more regular than the information proves.

WORKED EXAMPLE

In rectangle ABCD shown, find the length of CD.

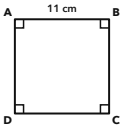


1. Opposite sides of a rectangle are congruent.
2. AB and CD are opposite sides.
3. AB = 14 cm, so CD = 14 cm.

Answer: CD = 14 cm

PRACTICE 6 problems

1 In the square shown, what is the length of CD?



ANSWER _____

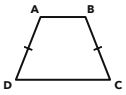
2 Parallelogram PQRS has m angle P = 72°. Find m angle R.

ANSWER _____

3 In rectangle KLMN, diagonal KM is 18 cm. Find the length of diagonal LN.

ANSWER _____

4 Name the two congruent sides marked with matching tick marks in the trapezoid shown.



ANSWER _____

5 A rhombus has diagonals measuring 10 cm and 16 cm. Are the diagonals congruent? Write yes or no.

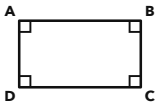
ANSWER _____

6 A quadrilateral has four congruent sides and four right angles. Name the most specific quadrilateral.

ANSWER _____

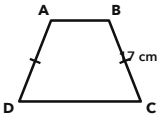
APPLY IT Show your work

1 A gaming club makes a rectangular prize display ABCD shown. One corner-to-corner LED strip, AC, is 25 cm long. What is the length of the other diagonal, BD?



ANSWER _____

2 At a student council art sale, a trapezoid sign ABCD has matching tick marks on its legs, as shown. BC is 17 cm. What is the length of AD?



ANSWER _____

CHALLENGE One step up

Quadrilateral WXYZ is a parallelogram. Its diagonals WY and XZ each measure 15 cm. Its four sides are not all congruent. What is the most specific name for WXYZ? Explain your reasoning.

WORK SPACE AND ANSWER

ANSWER KEY

Quad Property Detectives

GRADE 7 · 7.MG.3.a.ii

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In the square shown, what is the length of CD?	**CD = 11 cm**
2	Parallelogram PQRS has m angle P = 72°. Find m angle R.	**72°**
3	In rectangle KLMN, diagonal KM is 18 cm. Find the length of diagonal LN.	**LN = 18 cm**
4	Name the two congruent sides marked with matching tick marks in the trapezoid shown.	**BC and AD**
5	A rhombus has diagonals measuring 10 cm and 16 cm. Are the diagonals congruent? Write yes or no.	**No**
6	A quadrilateral has four congruent sides and four right angles. Name the most specific quadrilateral.	**square**

PART 2 · APPLY IT

1. **BD = 25 cm** The diagonals of a rectangle are congruent. Since AC is 25 cm, BD is also 25 cm.
2. **AD = 17 cm** The matching tick marks show that BC and AD are congruent. Therefore, AD has the same length as BC.

CHALLENGE

WXYZ is a rectangle, not a square. A parallelogram with congruent diagonals is a rectangle, and its sides are not all congruent.

Accept answers with or without units when the numerical measure is correct. For the challenge, accept equivalent reasoning that uses congruent diagonals to identify a rectangle and notes that unequal side lengths rule out a square.