LESSON MAKER PRO

Missing Side Detective

Use quadrilateral properties to uncover each unknown length.

GRADE 7 · 7.MG.3.d

7.MG.3.d "Given a diagram, determine an unknown side length in a quadrilateral using properties of quadrilaterals."

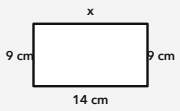
NAME _____ DATE _____

EQUAL SIDES, SMART CLUES

In a parallelogram or rectangle, opposite sides have equal lengths. In a rhombus or square, all four sides are equal. A kite and an isosceles trapezoid also have equal side pairs that help you find a missing length.

WORKED EXAMPLE

Look at the rectangle. Find x.

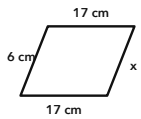


1. Opposite sides of a rectangle are equal.
2. The side opposite x is labeled 14 cm.
3. x = 14 cm.

Answer: 14 cm

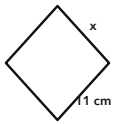
PRACTICE 6 problems

1 Look at the parallelogram. Find x.



ANSWER _____

2 Look at the rhombus. Find x.



ANSWER _____

3 In parallelogram ABCD, AB = 23 cm, BC = 8 cm, and CD = x. Find x.

ANSWER _____

4 In rectangle ABCD, AB = 19 cm, BC = 12 cm, and AD = x. Find x.

ANSWER _____

5 Isosceles trapezoid WXYZ has bases WX = 28 cm and YZ = 20 cm. Its legs are XY = 15 cm and ZW = x. Find x.

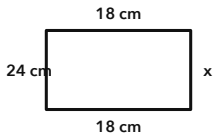
ANSWER _____

6 Kite EFGH has EF = FG and GH = HE. If FG = 13 cm and EF = x, find x.

ANSWER _____

APPLY IT Show your work

1 A student is making a rectangular border for a gaming poster. The diagram shows the side lengths in centimeters. How long is x?



ANSWER _____

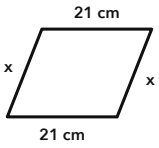
2 A kite-making club cuts a kite-shaped fabric panel. Its two top sides are an equal pair. One top side is 12 cm long, and the other top side is x cm long. How long is x?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The parallelogram has a perimeter of 74 cm. Find x and explain how the perimeter helps you solve the problem.



WORK SPACE AND ANSWER

ANSWER KEY

Missing Side Detective

GRADE 7 · 7.MG.3.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Look at the parallelogram. Find x.	**6 cm**
2	Look at the rhombus. Find x.	**11 cm**
3	In parallelogram ABCD, AB = 23 cm, BC = 8 cm, and CD = x. Find x.	**23 cm**
4	In rectangle ABCD, AB = 19 cm, BC = 12 cm, and AD = x. Find x.	**12 cm**
5	Isosceles trapezoid WXYZ has bases WX = 28 cm and YZ = 20 cm. Its legs are XY = 15 cm and ZW = x. Find x.	**15 cm**
6	Kite EFGH has EF = FG and GH = HE. If FG = 13 cm and EF = x, find x.	**13 cm**

PART 2 · APPLY IT

1. **24 cm** Opposite sides of a rectangle have equal lengths. The side labeled x is opposite the side labeled 24 cm, so x = 24 cm.
2. **12 cm** The two top sides are equal. Since one is 12 cm, x = 12 cm.

CHALLENGE

x = 16 cm. Opposite sides are equal, so 74 = 2(21) + 2x. Therefore, 2x = 32 and x = 16 cm.

Accept answers with or without the unit when the numerical value is correct. For the challenge, accept equivalent reasoning that identifies two 21 cm sides and two x cm sides.