LESSON MAKER PRO

Find the Missing Side

Use right triangles to solve for unknown lengths.

GRADE 8 · 8.GM.C.28

8.GM.C.28 "Apply the Pythagorean Theorem to determine unknown side lengths of right triangles, including real-world applications"

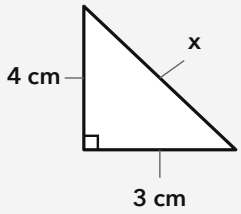
NAME _____ DATE _____

THE RIGHT TRIANGLE RULE

The two sides that meet at the right angle are legs. The longest side is the hypotenuse, and $leg^2 + leg^2 = hypotenuse^2$. If a leg is missing, subtract the known leg's square from the hypotenuse's square.

WORKED EXAMPLE

Find x in the triangle.

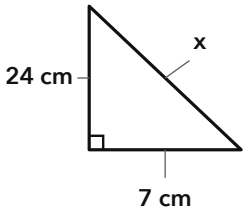


1. $x^2 = 3^2 + 4^2$
2. $x^2 = 9 + 16 = 25$
3. $x = \sqrt{25} = 5$

Answer: 5 cm

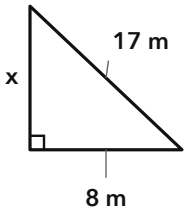
PRACTICE 6 problems

1 Find x in the triangle.



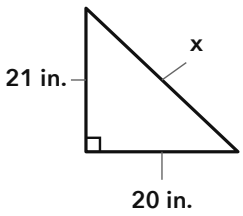
ANSWER _____

2 Find x in the triangle.



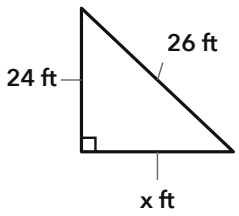
ANSWER _____

3 Find x in the triangle.



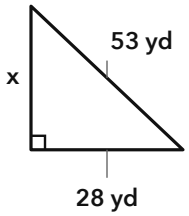
ANSWER _____

4 Find x in the triangle.



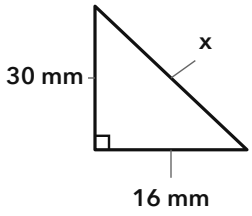
ANSWER _____

5 Find x in the triangle.



ANSWER _____

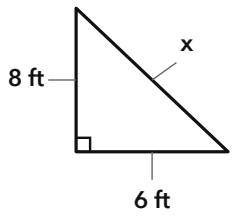
6 Find x in the triangle.



ANSWER _____

APPLY IT Show your work

1 A skate park is adding a straight ramp. The figure shows the ramp as x. How long is the ramp?



ANSWER _____

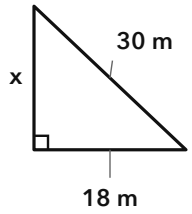
2 A streaming screen has a 65-inch diagonal and is 33 inches tall. How wide is the screen?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Find x, then find the triangle's perimeter. Show an equation for x.



WORK SPACE AND ANSWER

ANSWER KEY

Find the Missing Side

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find x in the triangle.	**25 cm**
2	Find x in the triangle.	**15 m**
3	Find x in the triangle.	**29 in.**
4	Find x in the triangle.	**10 ft**
5	Find x in the triangle.	**45 yd**
6	Find x in the triangle.	**34 mm**

PART 2 · APPLY IT

1. **10 ft** The ramp is the hypotenuse. $x^2 = 6^2 + 8^2 = 100$, so x = 10 ft.
2. **56 inches** The diagonal is the hypotenuse. The width squared is $65^2 - 33^2 = 3136$, so the width is 56 inches.

CHALLENGE

$30^2 - 18^2 = x^2$, so x = 24 m. Perimeter = 18 + 24 + 30 = 72 m.

For each item, check that students identify the hypotenuse before adding or subtracting squares. Accept equivalent equations and answers with the correct units.