LESSON MAKER PRO

Missing Side Quest

Find lengths in right triangles.

GRADE 8 · 8.GR.B.5.a

8.GR.B.5.a "Determine unknown side lengths in right triangles."

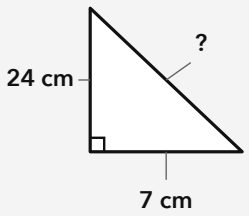
NAME _____ DATE _____

THE BIG IDEA

The legs of a right triangle meet at the right angle. If the legs are a and b and the hypotenuse is c, then $a^2 + b^2 = c^2$. To find a missing leg, subtract the known leg's square from the hypotenuse's square.

WORKED EXAMPLE

Find the side marked ?.



1. $7^2 + 24^2 = c^2$
2. $49 + 576 = 625$
3. $c = \sqrt{625} = 25$

Answer: 25 cm

PRACTICE 4 problems

1 a = 3, b = 4. Find c.

ANSWER _____

2 a = 8, b = 15. Find c.

ANSWER _____

3 a = 6, c = 10. Find b.

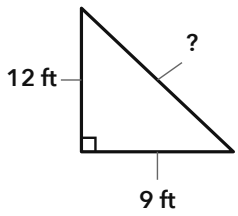
ANSWER _____

4 b = 5, c = 13. Find a.

ANSWER _____

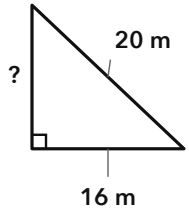
APPLY IT Show your work

1 A skate park ramp has the dimensions shown. How long is its sloped edge?



ANSWER _____

2 Three trails border a bike park as shown. How long is the trail marked ?



ANSWER _____

CHALLENGE One step up

For a right triangle, a = 9 in. and c = 15 in. Find b and the triangle's perimeter.

WORK SPACE AND ANSWER

ANSWER KEY

Missing Side Quest

GRADE 8 · 8.GR.B.5.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	a = 3, b = 4. Find c.	**5**
2	a = 8, b = 15. Find c.	**17**
3	a = 6, c = 10. Find b.	**8**
4	b = 5, c = 13. Find a.	**12**

PART 2 · APPLY IT

1. **15 ft** The sloped edge is the hypotenuse. Its length is $\sqrt{(9^2 + 12^2)} = 15$ ft.
2. **12 m** The missing trail is a leg. Its length is $\sqrt{(20^2 - 16^2)} = 12$ m.

CHALLENGE

b = 12 in.; perimeter = 36 in.

The challenge perimeter is 9 + 12 + 15 = 36 inches. Accept equivalent notation with the correct units for the context problems.