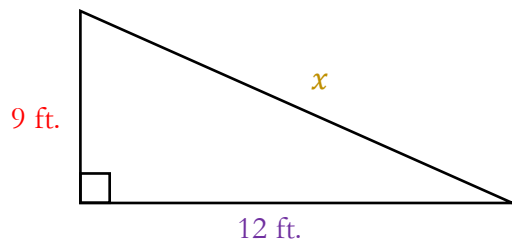**Given the right triangle below, find the missing side length.**

9 ft.

x

12 ft.

Kaden's "Addition" Method

The Pythagorean Theorem says that the two smaller lengths add to the longest length.

$$a + b = c$$

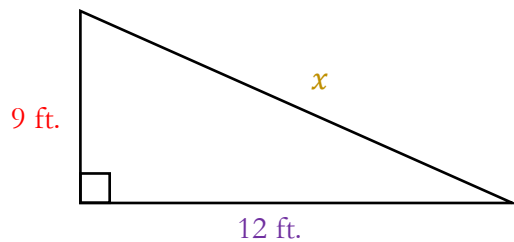I plug the values into the Pythagorean Theorem and solve for x.

$$9 + 12 = x$$

The length of the unknown side is 21 ft.

$$21 = x$$

Given the right triangle below, find the missing side length.

9 ft.

x

12 ft.

Maddie's "Squared" Method

$a^2 + b^2 = c^2$

The Pythagorean Theorem says that the sum of the squares of the two smaller sides is the same as the square of the longest side.

$9^2 + 12^2 = x^2$

$81 + 144 = x^2$

I plug the values into the Pythagorean Theorem and solve for x.

$225 = x^2$

$15 = x$

The missing side length is 15 ft.

Given the right triangle below, find the missing side length.

9 ft.

x

12 ft.

Kaden's "Addition" Method	Maddie's "Squared" Method

The Pythagorean Theorem says that the two smaller lengths add to the longest length.

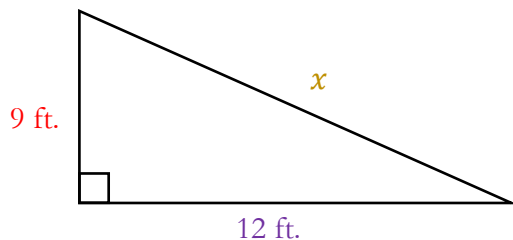$$a + b = c$$

$$a^2 + b^2 = c^2$$

The Pythagorean Theorem says that the sum of the squares of the two smaller sides is the same as the square of the longest side.

I plug the values into the Pythagorean Theorem and solve for x.

$$9 + 12 = x$$

$$9^2 + 12^2 = x^2$$

$$81 + 144 = x^2$$

$$225 = x^2$$

I plug the values into the Pythagorean Theorem and solve for x.

The length of the unknown side is 21 ft.

$$21 = x$$

$$15 = x$$

The missing side length is 15 ft.

P.2: *Missing Side Length*

1) What are the similarities and differences between Kaden and Maddie's methods?

Similarities	Differences

2) Kaden and Maddie got different answers. Can they both be correct? If not, who is correct, and how do you know?

3) Does it matter that Maddie used 9 for *a* and 12 for *b*? Why, or why not?

4) Find the missing side of the right triangle in the diagram.

Given the right triangle

Kaden'

The Pythago
Theorem says
the two small
lengths add to th
longest length.

I plug the value
into the
Pythagorean
Theorem and
solve for x.

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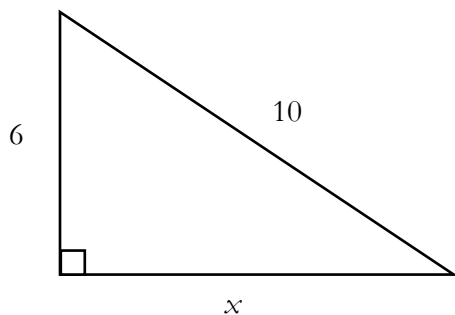
I'm so frustrated with myself! How could I forget that you have to square the side lengths before adding them, and then you have to take the square root to get your final answer?

Pythagoras would be so mad at me…

he
e of
gest side.

g the values
into the
ythagorean
Theorem and
solve for x.

$5 = x^2$

$21 = x$

$15 = x$

The missing side length is 15 ft.