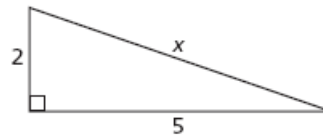**Strand**: Geometry
Performance Indicator: 7.G.08 - Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle

Year: 2006   **Grade**: 8   **Item**: 27

27   What is the length of side *x* in the triangle below?
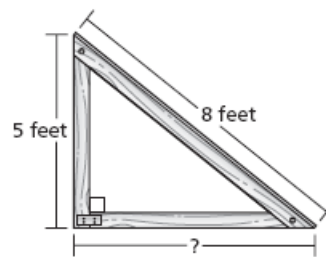

[not drawn to scale]

Pythagorean theorem:
$$c^2 = a^2 + b^2$$

A   7

B $\sqrt{7}$

C   29

D $\sqrt{29}$

Year: 2006   **Grade**: 8   **Item**: 32

32   Tyrone is building a skateboard ramp with a piece of plywood that is 8 feet long. He wants the height of the ramp to be 5 feet.
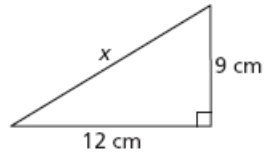

[not drawn to scale]

To make a strong ramp, the base must form a right angle with the back of the ramp. What will be the length of the base rounded to the nearest tenth of a foot?

Show your work.

Answer _____ feet

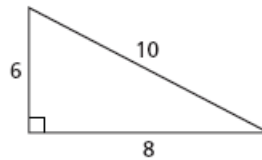**6** What is the length, in centimeters, of side *x* in the right triangle below?

[not drawn to scale]

Pythagorean theorem:
$$c^2 = a^2 + b^2$$

A 8

B 12

C 15

D 21

18 Based on the Pythagorean theorem, which relationship is true for the sides of the triangle shown below?

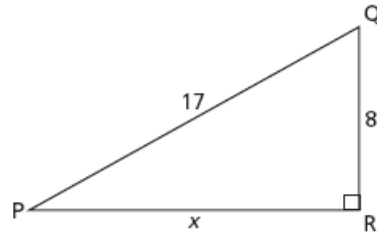

Pythagorean theorem:
$$c^2 = a^2 + b^2$$

A $8^2 + 10^2 = 6^2$

B $6^2 + 8^2 = 10^2$

C $6^2 + 8^2 = 10$

D $6^2 + 10^2 = 8^2$

Year: 2007   **Grade: 8**   **Item: 42**

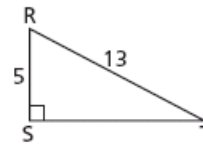**42**   Triangle PQR is a right triangle.

[not drawn to scale]

What is the length of side x?

Show your work.

Answer _____

Year: 2008   **Grade: 8**   **Item: 25**

25   Triangle RST is shown below.

[not drawn to scale]

Pythagorean theorem:
$$c^2 = a^2 + b^2$$

What is the length of $\overline{ST}$?

A   5

B   8

C   12

D   18

36   In triangle ABC below, $\overline{AB}$ is 9 meters long and $\overline{BC}$ is 7 meters long. Use the Pythagorean theorem to find the length of $\overline{AC}$ to the **nearest tenth** of a meter.
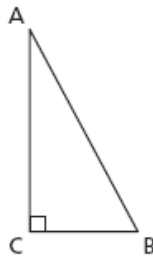
A

9

C   7   B
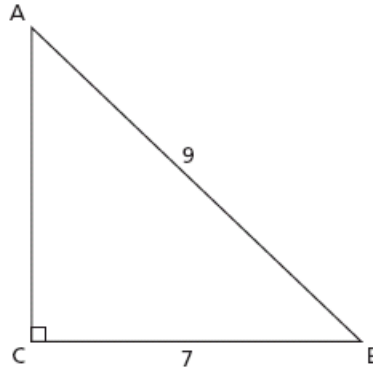
[not drawn to scale]

Show your work.

Answer ———————— meters

In triangle ABC below, ∠ACB is a right angle. If the length of $\overline{AC}$ is 8 centimeters and the length of $\overline{AB}$ is 10 centimeters, what is the length, in centimeters, of $\overline{BC}$?
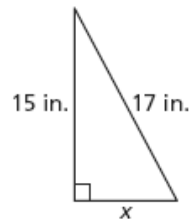
A

C   B

[not drawn to scale]

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

A   2

B   4

C   5

D   6

What is the length of side *x* in the triangle below?

15 in.   17 in.

x

[not drawn to scale]

A   2 inches

B   8 inches

C   23 inches

D   32 inches

8   Mr. Sanders used a diagonal board to divide a rectangular garden into two equal sections as shown in the diagram below.
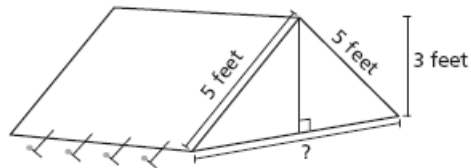
5 m

12 m
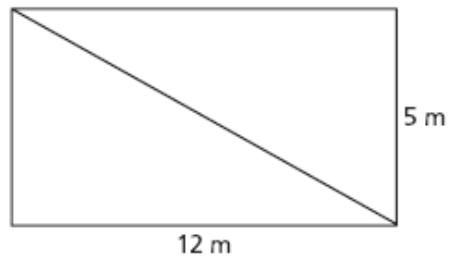
[not drawn to scale]

What is the length of the diagonal?

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

A   12 meters

B   13 meters

C   14 meters

D   15 meters

Year: Sample Test   **Grade: 8**   **Item: 18**

18   The diagram below shows the tent that Sebastian bought to go on a camping trip.

5 feet   5 feet   3 feet   ?
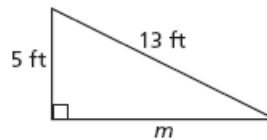
[not drawn to scale]

> Pythagorean theorem:
> $c^2 = a^2 + b^2$

How wide is the entire opening along the bottom of the tent?

F   4 feet
G   5 feet
H   6 feet
J   8 feet

Year: Sample Test   **Grade: 8**   **Item: 31**

31   Jenna has a triangular garden, as shown in the diagram below.

5 ft   13 ft m

[not drawn to scale]

What is the length, in feet, of side m?

Show your work.

Answer _____ feet