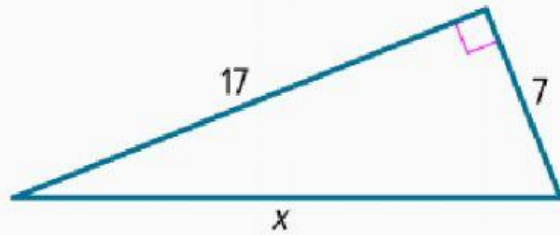## Pythagorean Theorem and Its Converse

Find the value of x.

The side opposite the right angle is the hypotenuse, so $c = x$.

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

$17^2 + 7^2 = x^2$ $a = \boxed{}$, $b = \boxed{}$, and $c = \boxed{}$

$\boxed{} + \boxed{} = x^2$ Simplify.
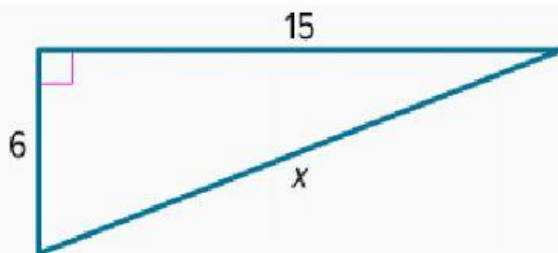
$338 = x^2$ Add.

$\sqrt{338} = x$ Take the positive square root of each side.

$13\sqrt{2} = x$ Simplify.

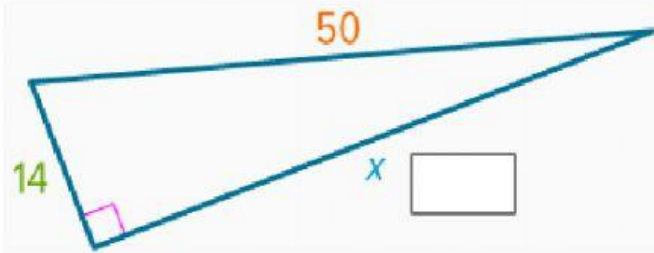**Find the value of x.**

○ A $3\sqrt{21}$

○ B $3\sqrt{29}$
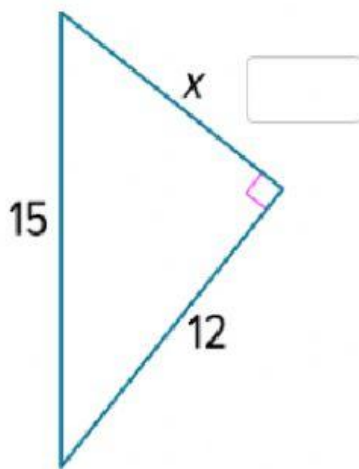
○ C $9\sqrt{29}$

○ D $\sqrt{286}$

LIVEWORKSHEETS

Use a Pythagorean triple to find the value of *x*. Explain your reasoning.

50

14

X

Use a Pythagorean triple to find the value of *x*.

X

15

12

🌐 **PAINTING** Harper is helping her parents paint the window shutters on their house, and she wants to use an 18-foot ladder to reach the windows on the second floor. If Harper places the ladder 4 feet from the base of the house, how high are the windows from the ground?

Part A
Find the exact height of the windows.

○ A $\sqrt{22}$ ft

○ B $2\sqrt{77}$ ft
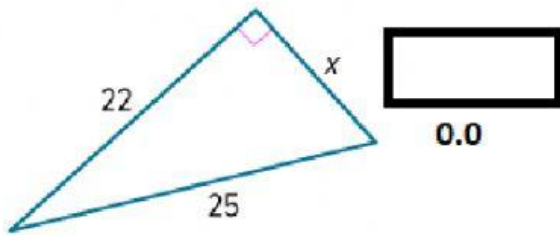
○ C $4\sqrt{77}$ ft

○ D $2\sqrt{85}$ ft

Part B
Estimate the height of the windows.
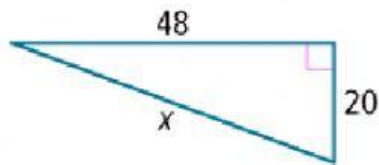
○ A 17.1 ft

○ B 17.5 ft

○ C 18 ft

○ D 18.4 ft

Find the value of x.

22

x

25

0.0

Use a Pythagorean triple to find the value of x.

48

20

x

$x =$ ⬚

Determine whether the points $J(1, 6)$, $K(3, 2)$, and $L(5, 3)$ can be the vertices of a triangle. If so, classify the triangle as *acute, right,* or *obtuse.*

- ○ **A)** no
- ○ **B)** yes; acute
- ○ **C)** yes; right
- ○ **D)** yes; obtuse