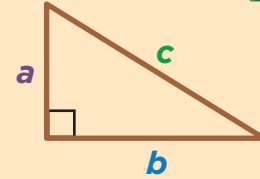


Pythagorean Theorem: WORD PROBLEMS



The Pythagorean theorem relates the side lengths of a right triangle. You can show the Pythagorean theorem using the following equation, where a and b represent the legs and c represents the hypotenuse:

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



Try it! Use the Pythagorean theorem to solve each word problem. Draw a picture of a right triangle to help you! Round your answer to the nearest tenth, if necessary.

1. A contractor is building a new room onto the back of Darnell's house. The contractor adds a diagonal brace to the frame of one of the walls. The frame is 15 feet long and 8 feet tall. How long is the diagonal brace?
2. Paola's dog, Rex, dug holes in opposite corners of Paola's rectangular yard. If the yard is 11 meters long and 4 meters wide, what is the distance between the holes?
3. Aika is setting up a volleyball net on the beach. There is a support cable from the top of one end of the net to the ground 6 feet away from the net. If the cable is 10 feet long, how high off of the ground is the net?
4. Feng is designing the layout for his rectangular garden. He plans to include a path that connects the opposite corners of the garden. The path will be 12 feet long, and the garden will be 9 feet long. How wide will the garden be?
5. Xavier wants to buy a new TV. Before he goes to the store, he measures his TV and notes that it is 56 inches long and 33 inches wide. When Xavier gets to the store, he realizes that TVs are measured by their diagonal length! What is the diagonal length of his current TV?
6. At marching band practice, Jada marches from one corner of her school's field to the opposite corner, covering 150 yards. If the field is 120 yards long, how wide is it?