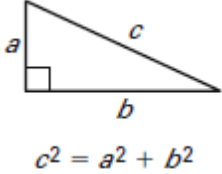
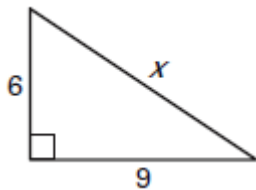


- I can use the Pythagorean Theorem to find side lengths in triangles.

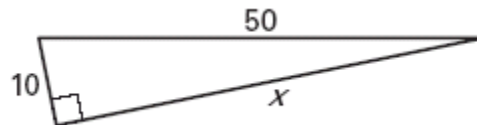
<b>Pythagorean Theorem</b>	In a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.	 $c^2 = a^2 + b^2$
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**Examples:** Identify the unknown side as a *leg* or *hypotenuse*. Then, use the Pythagorean Theorem to find length of missing side of a right triangle. Write your answer in simplest radical form.

1. Solve for  $x$ .



2. Solve for  $x$ .



**Example 3:** Two sides of a right triangle are 4 and 6. Please find all of the possible lengths for the missing side and state whether the missing side is a leg or a hypotenuse.

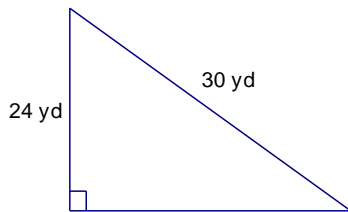
**Example 4:** Use Pythagorean Theorem to solve real-world problems.

A ladder rests against a house. The foot of the ladder is 8 feet from the house. The top of the ladder rests 15 feet above the ground. What is the length of the ladder?



**Example 5: Find area and perimeter of a right triangle**

A developer is planning a new park in the shape of a right triangle, as represented in the diagram below. Find the perimeter and area of the new park.



**Example 6: Find the area of an isosceles triangle.**

Find the area of the isosceles triangle with side lengths 16 meters, 17 meters, and 17 meters.

