

Math by Design Hint Pages

Finding the Missing Side Length in a Right Triangle

Flossville Park, Light the Way Task: Install the lights.

Flossville Park, Alley Oops Subtask 2: Cover the ramp surface.

Windjammer Center, Access for All Subtask 1: Cover the ramp.

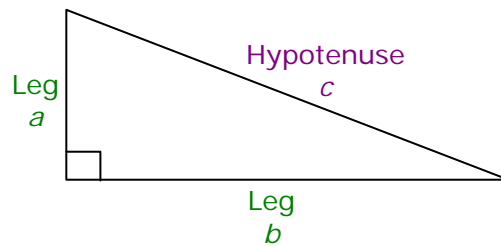
Windjammer Center, Access for All Subtask 2: Install curbs on both sides.

Right triangle: a triangle in which one angle has a measure of ninety degrees

Legs of a right triangle: the two sides of a right triangle that form the right angle

Hypotenuse of a right triangle: the side of a right triangle that is opposite the right angle; the hypotenuse is always the longest side of the right triangle

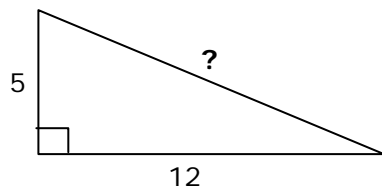
Example 1:



Relationship among the lengths of the sides of a right triangle: (Pythagorean Theorem)

If a and b represent the lengths of the **legs** of a right triangle and c represents the length of the **hypotenuse**, then $a^2 + b^2 = c^2$.

Example 2: The **legs** of a right triangle have lengths of 5 units and 12 units. What is the length of the **hypotenuse**?



$$\begin{aligned}a^2 + b^2 &= c^2 \\5^2 + 12^2 &= c^2 \\25 + 144 &= c^2 \\169 &= c^2 \\13 &= c\end{aligned}$$

Answer: The length of the **hypotenuse** is 13 units.