



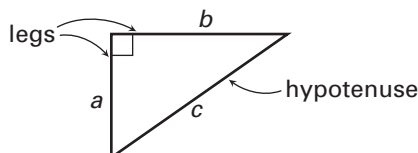
Objective 8 TEKS 8.9.A Review

8.9.A Use the Pythagorean Theorem to solve real-life problems.

The Pythagorean Theorem can be used to find distances and lengths in real-world settings.

Pythagorean Theorem

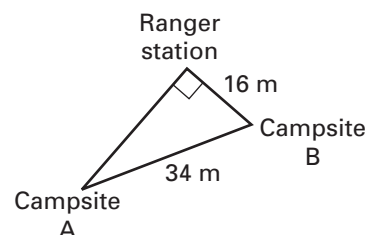
$$a^2 + b^2 = c^2$$



EXAMPLE

A group of campers established two camping sites in relation to a ranger's cabin. What is the distance between the ranger's station and campsite A?

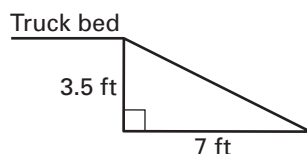
$a^2 + b^2 = c^2$	Pythagorean Theorem
$16^2 + b^2 = 34^2$	Substitute the dimensions.
$256 + b^2 = 1156$	Evaluate the powers.
$b^2 = 900$	Subtract 256 from each side.
$b = \sqrt{900}$	Take the square root of each side.
$b = 30$	Simplify.



The distance between the ranger's station and campsite A is 30 meters.

YOU DO IT

A moving truck has a retractable ramp. When the ramp is extended, the distance from the back of the truck to the end of the ramp is 7 feet. The distance from the floor of the truck bed to the ground is 3.5 feet. About how long is the extended ramp?



The ramp forms the hypotenuse of the right triangle, so the problem needs to be solved for c .

$a^2 + b^2 = c^2$	Pythagorean Theorem
$\frac{(3.5)^2}{12.25} + \frac{7^2}{49} = \frac{c^2}{c^2}$	Substitute the dimensions.
$\frac{61.25}{61.25} = \frac{c^2}{c^2}$	Evaluate the powers.
$\frac{\sqrt{61.25}}{7.8} = \frac{c}{c}$	Add $a^2 + b^2$.
$7.8 \approx c$	Take the square root of each side.
	Simplify.

The ramp is about 7.8 feet long.