

Unknown Side Lengths in Right Triangle - Guided Lesson Explanation**Explanation#1**

In a right triangle, $a^2 + b^2 = c^2$, where a and b are the lengths of the direction and c is the length of the hypotenuse. It is called the Pythagorean theorem.

$$20^2 + 6^2 = c^2$$

$$400 + 36 = c^2$$

$$c^2 = 436$$

$$c = \sqrt{436}$$

$$c = \sim 20.88$$

Explanation#2

It forms a right triangle, $a^2 + b^2 = c^2$, where a and b are the lengths of the road and c is the length of the hypotenuse.

Step 3) $a^2 + b^2 = c^2$

$$6^2 + 9^2 = c^2$$

$$36 + 81 = c^2$$

$$117 = c^2$$

$$C = \sqrt{117}$$

$$C = 10.81$$

The distance between P and R is 10.81 kilometers.

Explanation#3

We follow the same procedure we have been, except this time we are looking for a leg of the triangle instead of the hypotenuse.

$$1) 15^2 + b^2 = 7^2$$

$$2) 225 + b^2 = 49$$

$$3) b^2 = 176$$

$$4) b = \sqrt{176}$$

$$b = \sim 13.26 \text{ centimeters}$$

