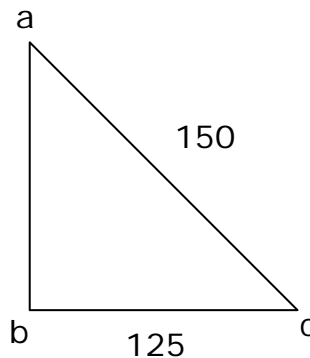


**Pythagorean Theorem Proofs and its Converse – Homework 3**

**Example:** A triangular shaped field is 125 yards long and the length of the diagonal of the field is 150 yards. What is the width of the field?

**Step 1:** In a right triangle,  $a^2 + b^2 = c^2$ , where a and b are the lengths of the legs and c is the length of the hypotenuse. This is called the Pythagorean Theorem.



**Step 2:** Use the Pythagorean Theorem,

$$\begin{aligned}a^2 + 125^2 &= 150^2 \\a^2 + 15,625 &= 22,500 \\a^2 &= 22,500 - 15,625 \\a^2 &= 6,875 \\a &= 82.9 \text{ yards}\end{aligned}$$

**Answer:** The width of the field is 82.9 yards

Complete the following problems:

1. Ronald leaves home to go to the shop. He walks 6 blocks west and then he heads 8 blocks south. How far is Ronald from his home?

2. A pigeon was sitting 8 meters from the base of a telephone pole. He flew 10 meters to reach the top of the pole. How tall is the telephone pole?

