Using the Pythagorean Theorem in Word Problems – WS #2

Solve by drawing a picture, identifying a, b, and c, and applying the Pythagorean Theorem. Don't forget to give your answer with units!

1. Two sides of a right triangle are 8 and 12 in.
   a. Find the missing side if these are the lengths of the legs.
   b. Find the missing side if these are the lengths of a leg and hypotenuse.

2. The foot of a ladder is placed 6 feet from a wall. If the top of the ladder rests 8 feet up on the wall, how long is the ladder?

3. The bottom of a ladder must be placed 3 ft. from a wall. The ladder is 12 feet long. How far above the ground does the ladder touch the wall?

4. John leaves school to go home. He walks 6 blocks North and then 8 blocks west. How far is John from the school?

5. Scott wants to swim across a river that is 400 meters wide. He begins swimming perpendicular to the shore he started from but ends up 100 meters down river from where he started because of the current. How far did he actually swim from his starting point?

6. A ramp is placed from a ditch to a main road 2 ft. above the ditch. If the length of the ramp is 12 ft., how far away is the bottom of the ramp from the road?

7. A 13 ft. ladder is placed 5 feet away from a wall. The distance from the ground straight up to the top of the wall is 13 ft. Will the ladder reach the top of the wall?
8. What is the length of the diagonal of a 10 cm by 15 cm rectangle?

9. The diagonal of a rectangle is 25 in. The width is 15 in. What is the length?

10. A soccer field is a rectangle 90 meters wide and 120 meters long. The coach asks players to run from one corner to the corner diagonally across. What is this distance?

11. A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the nearest tenth of a foot, between first base and third base?

12. The area of a square is 81 square centimeters. First, find the length of a side. Then, find the length of the diagonal.

13. In a computer catalog, a computer monitor is listed as being 19 inches. This distance is the diagonal distance across the screen. If the screen measures 10 inches in height, what is the actual width of the screen to the nearest inch?

14. Donna's TV screen is 20 inches long. If the diagonal measures 25 inches, how long is the width of Donna's TV?

15. An isosceles triangle has congruent sides of 20 cm. The base is 10 cm. Find the height of the triangle.
Using the Pythagorean Theorem in Word Problems – WS #3

Solve by drawing a picture, identifying a, b, and c, and applying the Pythagorean Theorem. Don't forget to give your answer with units!

If the legs of an isosceles right triangle are 5 inches long, approximate the length of the hypotenuse to the nearest whole number.

Two joggers run 8 miles north and then 5 miles west. What is the shortest distance, to the nearest tenth of a mile, they must travel to return to their starting point?

To get from point A to point B you must avoid walking through a pond. To avoid the pond, you must walk 34 meters south and 41 meters east. To the nearest meter, how many meters would be saved if it were possible to walk through the pond?

Jill’s front door is 42” wide and 84” tall. She purchased a circular table that is 96 inches in diameter. Will the table fit through the front door? Explain.

In the Old West, settlers often fashioned tents out of a piece of cloth thrown over tent poles and then secured to the ground with stakes forming an isosceles triangle. How long would the cloth have to be so that the opening of the tent was 4 meters high and 3 meters wide?

How far from the base of the house do you need to place a 15-foot ladder so that it exactly reaches the top of a 12-foot tall wall?

Tanya runs diagonally across a rectangular field that has a length of 40 yards and a width of 30 yards. What is the length of the diagonal, in yards, that Tanya runs?

A suitcase measures 24 inches long and 18 inches high. What is the diagonal length of the suitcase to the nearest tenth of a foot?

http://www.basic-mathematics.com/pythagorean-theorem-word-problems.html
http://www.regentsprep.org/Regents/math/ALGEBRA/AT1/PracPyth.htm