Name:_____Pd:_____Date:_____

Pythagorean Theorem Applications

Solve the following using the "CUBES" strategy AND drawing a picture. Be sure to identify the sides of your right triangle (a, b, and c) before solving. Don't forget your UNITS!

1. The bottom of a 13-foot straight ladder is set into the ground 5 feet away from a wall. When the top of the ladder is leaned against the wall, how high will the ladder reach?

2. Your family wants to purchase a new 50-inch TV. The 50 inches is actually the diagonal measurement of the screen (upper corner to lower corner). When you measured the laptop at the store, the height was 10 inches, but you don't remember the width. Calculate the width of the laptop to the nearest tenth inch.

3. A baseball "diamond" is actually a square with sides of 90 feet. If a runner tries to steal second base, how far must the catcher, at home plate, throw to get the runner "out"? Given this information, explain why runners more often try to steal second base than third.

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

Challenge Problems☺

5. In construction, floor space must be planned for staircases. If the vertical distance between the first and second floors is 3.6 meters, and a contractor is using the standard step pattern of 28 cm wide for 18 cm high, then how many steps are needed to get from the first to the second floor and how much linear distance (ie "width" or "base") will be needed for the staircase? What is the length of the railing that would be attached to these stairs?

6. In shop class, you make a table. The sides of the table measure 36" and 18". If the diagonal of the table measures 43", is the table "square"? (In construction, the term "square" just means the table has *right angles* at the corners.)

7. In the Old West, settlers made tents out of a piece of cloth thrown over a clothesline 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 6 feet high and 8 feet wide?