

Pythagorean Theorem Picture Task (2018)

Name: \_\_\_\_\_

1. The slide at the playground has a height of 6 feet. The base of the slide measured on the ground is 8 feet. What is the length of the sliding board?

2. 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, what is the distance above the ground it will reach?

3. 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.)

4. 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?

For each question, draw a picture or diagram to illustrate the situation, correctly label the parts. Set up the pythagorean theorem and substitute values in order to solve for the desired question. Each question will be worth 3 points.

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5. 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.

6. Your family wants to purchase a new laptop with a 17" widescreen. Since the 17 inches represents the diagonal measurement of the screen (upper corner to lower corner), you want to find out the actual dimensions of the laptop. When you measured the laptop at the store, the height was 10 inches, but you don't remember the width. Calculate and describe how you could figure out the width of the laptop to the nearest tenth inch.

7. During a football play, DeSean Jackson runs a straight route 40 yards up the sideline before turning around and catching a pass thrown by Michael Vick. On the opposing team, a defender who started 20 yards across the field from Jackson saw the play setup and ran a slant towards Jackson. What was the *distance* the defender had to run to get to the spot where Jackson caught the ball?

8. 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?

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