Pythagorean Theorem and 45-45-90 Triangle Problems Names: _____

Use the Pythagorean Theorem OR 45-45-90 right triangle properties to answer the following questions. Draw a diagram for each question and show your work.

1. The town of Versailles is 24 miles north and 8 miles east of Harrodsburg. A train runs on a straight track between the two towns. Determine how many miles the train travels between Versailles and Harrodsburg. *(Round your answer to the nearest tenth)*

2. You need to construct a ramp to roll a cart from your garage into the back of your truck. The truck is 8 feet from the garage. The back of the truck is 3 feet above the ground. Determine how long the ramp needs to be (in feet). *(Round your answer to the nearest tenth)*

3. A boy, 75 feet from a building, is looking up at a bird that is sitting on top of the building. The building is 60 feet tall. If the boy could draw a straight line from himself to the bird, determine how far away from the bird the boy is (in feet). *(Round your answer to the nearest hundredth)*

4. Two telephone poles are 75 feet apart and the poles are each 50 feet tall. Determine the distance from the base of one pole to the top of the other pole (in feet). *(Round your answer to the nearest tenth)*

5. A walkway forms the diagonal of a square playground. The walkway is 24 meters long. To the nearest tenth of a meter, determine how long each side of the playground is. *(Write your answer in simplest radical form, and as a decimal rounded to the nearest hundreth)*

6. An official baseball diamond is a square with sides 90 feet long. How far is it from home plate to second base? *(Write your answer in simplest radical form, and as a decimal rounded to the nearest tenth)*

7. Triangle PQR is an isosceles right triangle. The measure of the hypotenuse of PQR is 12. Determine the length of each leg of PQR. *(Write your answer in simplest radical form, and as a decimal rounded to the nearest tenth))*

8. The diagonal of a television is 25 inches. The television forms a square. Determine the length and width of the television to the nearest tenth.

9. In order to make flat boards from a round log, a miller first trims off the four sides to make a square beam. Then the beam is cut into flat boards. If the diameter of the original log was 15 inches, find the maximum width of the boards. *(Write your answer in simplest radical form, and as a decimal rounded to the nearest tenth)*

10. A square bolt 2 centimeters on each side is to be cut from round stock material. To the nearest tenth, find the length of a diagonal of the square. *(Write your answer in simplest radical form, and as a decimal rounded to the nearest tenth)*