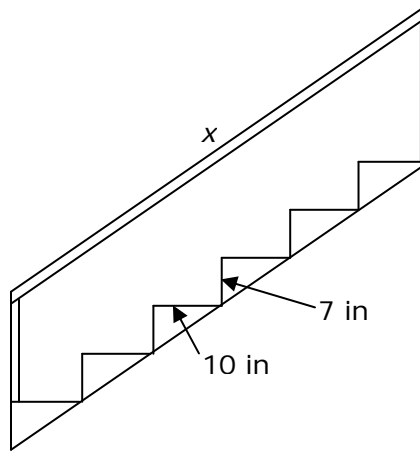


**Math by Design**  
**Flossville Town Park Constructed Response Questions**

**Right Triangle Concepts**

Mr. Carpenter needs to determine the length,  $x$ , of the handrail for the stairs on his new deck. The side view is shown in the figure below. Each step is 7 inches high and 10 inches from front to back.



Step A: What is the length of the rail?

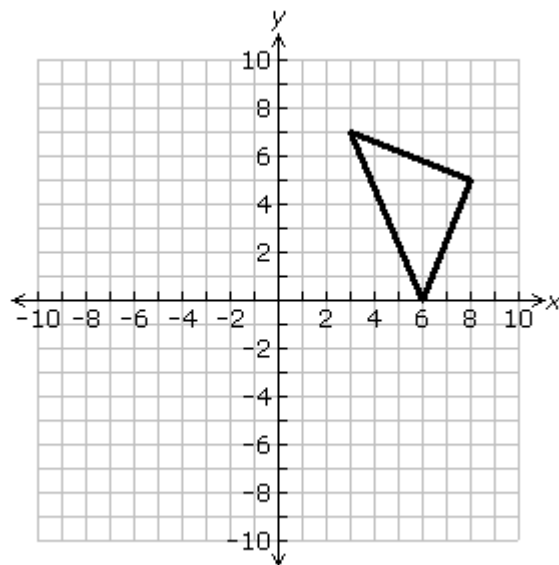
Step B: Use what you know about the Pythagorean Theorem to explain how you determined the length of the rail. Use words, numbers, and/or symbols in your explanation.

**Transformations**

The vertices of the triangle shown below are located at  $(6, 0)$ ,  $(3, 7)$  and  $(8, 5)$ . The triangle is reflected over the  $y$ -axis.

Step A: What are the coordinates of the vertices of the triangle after the reflection?

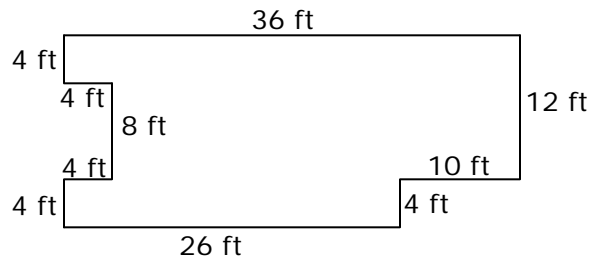
Step B: Use what you know about reflections to explain how you determined the coordinates of the vertices. Use words, numbers, and/or symbols in your explanation.



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**Area of a Composite Figure**

Mrs. Cook is replacing the tile on her kitchen floor. The floor plan of Mrs. Cook's kitchen is shown below.



Step A: What is the area of the kitchen floor?

Step B: Use what you know about finding the area of a composite figure to explain how you determined the area of the floor. Use words, numbers, and/or symbols in your explanation.

**Volume of a Cylinder**

Mr. Smith has a cylindrical swimming pool in his back yard. It has a diameter of 20 feet and is 4 feet deep.



Step A: What is the volume of the swimming pool?

Step B: Use what you know about finding the volume of a cylinder to explain how you determined the volume of the pool. Use words, numbers, and/or symbols in your explanation.

**Proportional Reasoning**



An architect is making a scale model of a building he has designed. The scale of the model is 1 in = 2 ft. The length of the model is 35 inches and its width is 20 inches.

Step A: What will be the actual length of the building?

Step B: Use what you know about proportional reasoning to explain how you determined the length of the building. Use words, numbers, and/or symbols in your explanation.