PAP Geometry - HW 1.2 - Translating and Constructing Line Segments

Vocabulary

Choose the term from the box that best completes each statement.

Distance Formula	transformation	pre-image
rigid motion	translation	arc
copying (duplicating) a line segment	image	

1. A(n) _____ is a transformation of points in space.

2. The new figure created from a translation is called the _____.

3. A(n) _____ is a part of a circle and can be thought of as the curve between two points on a circle.

4. A(n) _____ is the mapping, or movement, of all the points of a figure in a plane according to a common operation.

5. The _____ can be used to calculate the distance between two points on a coordinate place.

6. In a translation, the original figure is called the _____.

7. A(n) _____ is a rigid motion that "slides" each point of a figure the same distance and direction.

8. A basic geometric construction called _____ can be used to translate a line segment when measurement is not possible.

Problem Set

Calculate the distance between each given pair of points. Round your answer to the nearest tenth, if necessary.

9. $(-6, 4)$ and $(5, -1)$

10. $(9, -2)$ and $(2, -9)$

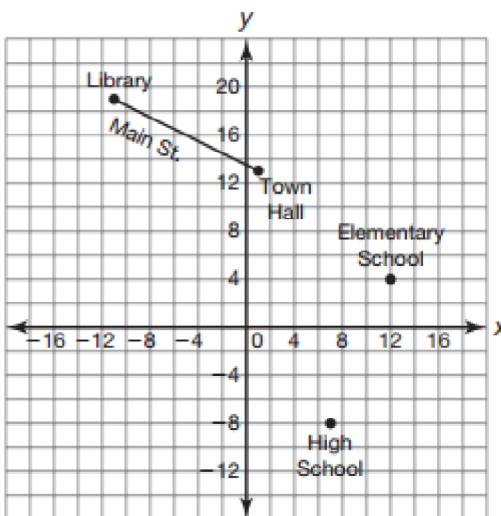Construct each line segment described.

11. Duplicate $\overline{AB}$.

A _____ B

12. Construct a line segment twice the length of $\overline{JK}$.

J _____ K

Use the map of Smalltown to answer each question. One mile is equal to 6 units on the map.

13. After school today, Mica must walk from the high school to the elementary school to pick up his younger brother.

   a.   Determine the distance between the high school and the elementary school.

   b.   How many miles must Mica walk to pick up his younger brother?

14. The coordinates for the points that mark the locations of the grocery store and the post office can be determined by translating Main Street vertically 15 units down. The grocery store is located directly south of the town hall.

    a.   What are the coordinates of the points that mark the location of the grocery store and the post office? Explain how you determined your answers. Then, plot the points on the coordinate plane.

    b.   What must be true about the road between the post office and grocery store and Main Street? Explain how you determined your answer. Then, use mathematics to verify your answer.

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15. The town would like to construct a park that is one mile from the town hall. Use your compass to show all possible locations for the new park. Explain how you determined your answer.