Unit 7 Passport Project

- Number lines can be used to show numbers and their opposites.
- Both 3 and −3 are 3 units from zero on the number line.
- Graphing points and reflecting across zero on the number line extends to graphing and reflecting points across the x-axes (horizontal number line) or the y-axis (vertical number line) on a coordinate plane.

1. On the horizontal number line, plot 5 and −5.

What is the distance of each point from zero? ______________

What is the distance between 5 and −5? ______________
Write an expression using absolute value that could be used to find the distance between 5 and −5.

2. On the vertical number line to the right, plot 8 and −8.

What is the distance of each point from zero? ______________

What is the distance between 8 and −8? ______________
Write an expression using absolute value that could be used to find the distance between 8 and −8.

3. The points (1, 3), (-1, 5), (-3, 3), and (4, -4) have been graphed on the coordinate plane.

When the star (1, 3) is reflected across the x-axis, the new point is located at (______, ______).

When the triangle (-1, 5) is reflected across the x-axis, the new point is located at (______, ______).

When the smiley face (-3, 3) is reflected across the y-axis, the new point is located at (______, ______).

When the lightning bolt (4, -4) is reflected across the y-axis, the new point is located at (______, ______).
Use the drawing of the city to help you answer questions 4 - 7. For each question, write a number sentence using the distance from the axis (absolute value) to help justify your answer.

4. What is the location of city hall? (       ,       ) What is the location of the police station? (       ,       )
   How many blocks apart are these two buildings? ________________
   Number sentence to support answer: _________________________________________________________

5. What is the location of the art museum? (       ,       ) What is the location of the animal shelter? (       ,       )
   How many blocks apart are these two buildings? ________________
   Number sentence to support answer: _________________________________________________________

6. What is the location of the hospital? (       ,       ) What is the location of the cemetery? (       ,       )
   How many blocks apart are these two buildings? ________________
   Number sentence to support answer: _________________________________________________________

7. What is the location of the hospital? (       ,       ) What is the location of the police station? (       ,       )
   How many blocks apart are these two buildings? ________________
   Number sentence to support answer: _________________________________________________________

8. On the map, plot and label the locations of the three schools.
   Point E: Elementary: (-4, 2)  Point M: Middle: (2, 2)  Point H: High: (-4, -3).
   A. Each school forms the vertex of a rectangle. If the district office for the school system is the fourth vertex of the rectangle, what are the coordinates?
      (       ,       ) (       ,       ) (       ,       ) (       ,       )
   B. What is the length of the rectangle? ________________
      What is the width of the rectangle? ________________
   C. What is the perimeter of the rectangle? ________________
   D. What is the area of the rectangle? ________________