Chapter 9 Study Guide

Name: Date: Period:

CL9-146. Consider the quadratic function $f(x) = (x - 2)^2 + 9$.

   a.   Identify the vertex and state if it is the maximum or minimum point of the function.

   b.   Why does $f(x) = (x - 2)^2 + 9$ have no real solutions?

   c.   What are the roots of the polynomial function $f(x) = (x - 2)^2 + 9$?

CL 9-147. Given the function $f(x) = 2x^2$, write an equation for each transformation and describe how the transformed graph would be different from the original graph.

a. $g(x) = f(x) + 2$	b. $h(x) = 2 \cdot f(x)$
c. $j(x) = f(x + 2)$	d. $k(x) = f(2x)$

CL 9-148. For each quadratic function below, **complete the square to write it in graphing form.** State the vertex and intercepts of each parabola.

a. $y = x^2 - 10x + 22$	b. $y = x^2 + 11x + 73$

CL 9-149. Given the system of equations:

$$y = (x + 2)^2$$
$$y = -2x - 4$$

a. How many points of intersection could there be?

b. Use your algebra skills to calculate the exact point(s) of intersection.

CL9-150. Solve each equation or inequality algebraically. Then represent your solution on a number line.

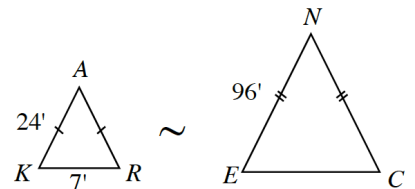a. $6(x - 2) \geq 12$

b. $(3x + 7)^2 = 144$

c. $x^2 - 3x - 4 < 0$

CL 9-151. For the parabola $y = 2x^2 - 12x + 6$:

    a. Is the vertex a maximum or minimum? Explain your reasoning.

    b. Determine the coordinates of the vertex.

    c. Make a sketch of the graph without using a calculator.

CL 9-153. The triangles shown at right are similar.

    a. What is the ratio of side length NE to side length AK?

    b. Use a ratio to compare the perimeters of ΔENC and ΔKAR. How is the perimeter ratio related to the side length ratio?

    c. If you have not already done so, calculate EC.