**NAME**

**TEST #3 – Unit #6 – 2nd Quarter**

**Unit #6 Formative Assessment**

**Score: \_\_\_\_\_\_\_\_ /39**

**Common Core Algebra II**

**Part I Questions: Answer all questions in this part by writing the choice of the appropriate answer in the blank beside the problem. Each question is worth 2 points. No partial credit will be awarded.**

1. What are the coordinates of the turning point of the parabola whose equation is ?
   * 1. 
     2. 
     3. 
     4. 
2. Which of the following represents a correct factored form of the trinomial ?
   * 1. 
     2. 
     3. 
     4. 
3. Which of the following are the zeroes of the function  in terms of *a* and *b*?
   * 1. 
     2. 
     3. 
     4. 
4. A ball was dropped from the top of a 50-foot tall building. Its height above the ground is given by the equation , where *t*  is the time it has been dropping in seconds. Which of the following gives the time it takes for the ball to reach the ground?
   * 1. 1.34 seconds
     2. 1.76 seconds
     3. 1.89 seconds
     4. 2.09 seconds
5. Which equation below represents the parabola  written in vertex form?
   * 1. 
     2. 
     3. 
     4. 
6. What is the equation of the circle passing through the point  and centered at ?
   * 1. 
     2. 
     3. 
     4. 
7. If the area of a rectangle is expressed as , then the product of the length and width of the rectangle could be expressed as
   * 1. 
     2. 
     3. 
     4. 
8. How does the graph of  compare to the graph of ?
   * 1. The vertex of the new graph is moved to the left 2 units and up 1 unit.
     2. The vertex of the new graph is moved to the right 2 units and up 1 unit.
     3. The vertex of the new graph is moved to the left 2 units and down 1 unit.
     4. The vertex of the new graph is moved to the right 2 units and down 1 unit.

**Part II Questions: Answer all questions in this part. Each correct answer will receive 3 credits. Clearly indicate the necessary steps and explain your reasoning. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.**

9. Factor completely: 

10. Find the center and radius of the circle: 

11. Place the quadratic into vertex form by using the method of completing the square and then state the coordinates of its vertex.

**Part III Questions: Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps and explain your reasoning. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.**

12. A ball is shot out of a homemade air cannon. It flies through the air such that its height as a function of time is given by:  where *h* is the height of the ball in feet and *t* is the time since it was fired in seconds.

1. Find the time that the ball reaches the maximum height and what is the maximum height?
2. Drew estimates that it takes 4 seconds for the ball to hit the ground and David estimates it takes 6 seconds. Graphically determine who is closer and support your answer.
3. Sketch the graph and label all important features of this function.
4. Determine the interval of time over which the ball is at least 50 feet in the air, round to the nearest tenth.

a)

b)

c) see graph

d)

13. Solve the following quadratic inequality. Write you final answer in set-builder notation and represent the solution set on a number line.



**Part IV Questions: Answer all questions in this part. Each correct answer will receive 6 credits. Clearly indicate the necessary steps and explain your reasoning. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.**

14. Determine the equation of the parabola whose focus is the point  and whose directrix is the horizontal line . First, draw a diagram that shows the parabola, then carefully use the distance formula to derive its equation.