**REVIEW #3**

**COMMON CORE EXAM QUESTIONS**

**UNIT 6**

**PART I** (2 points)

1. Which value of *x* is a solution to the equation ?

(1)  (3) 

(2)  (4) 

**PART I** (2 points)

2. What is the solution set of the equation ?

(1) -2 and *a* (3) 2 and *a*

(2) -2 and -*a* (4) 2 and *-a*

**PART II** (2 points)

3. Solve the equation  by completing the square.

**PART I** (2 points)

4. What are the solutions to the equation ?

(1)  (3) 

(2)  (4) 

**PART I** (2 points)

5. The method of completing the square was used to solve the equation . Which equation is a correct step when using this method?

(1)  (3) 

(2)  (4) 

**UNIT 7**

**PART II** (2 points)

6. Graph the function  on the set of axes below.

****

State the coordinates of a vertex of the graph.

**PART III** (4 points)

7. Alex launched a ball into the air. The height of the ball can be represented by the equation , where *h* is the height, in units, and *t* is the time, in seconds, after the ball was launched. Graph the equation from  to seconds.



State the coordinates of the vertex and explain its meaning in the context of the problem

**PART III** (4 points)

8. A manager wanted to analyze the online shoe sales for his business. He collected data for the number of pairs of shoes sold each hour over a 14-hour time period. He created a graph to model the data, as shown below.



The manager believes the set of integers would be the most appropriate domain for this model. Explain why he is *incorrect*.

State the entire time interval for which the number of pairs of shoes sold is increasing.

Determine the average rate of change between the sixth and fourteenth hours, and explain what it means in the context of the problem.

**PART III** (4 points)

9. Let  and . On the set of axes below, draw the graphs of  and .



Using this graph determine the state *all* values of *x* for which .

**UNIT 8**

**PART I** (2 points)

10. Which statement is true about the quadratic functions *g(x)*, shown in the table below, and ?

****

(1) They have the same vertex.

(2) They have the same zeros.

(3) They have the same axis of symmetry.

(4) They intersect at two points.

**PART I** (2 points)

11. Morgan throws a ball up into the air. The height of the ball above the ground, in feet, is modeled by the function , where *t* represents the time, in seconds, since the ball was thrown. What is the appropriate domain for this situation?

(1)  (3) 

(2)  (4) 

**PART I** (2 points)

12. The graph of a quadratic function is shown below.



An equation that represents the function could be

(1) 

(2) 

(3) 

(4) 

**PART II** (2 points)

13. Determine all the zeros of , algebraically.

**PART III** (4 points)

14. The function *r(x)* is defined by the expression . Use factoring to determine the zeros of *r(x)*.

Explain what the zeros represent on the graph of *r(x)*.

**PART I** (2 points)

15. The zeros of the function  are

(1)  (3) 

(2)  (4) 

**PART I** (2 points)

16. Which polynomial function has zeros at -3, 0, and 4?

(1)  (3) 

(2)  (4) 

**PART I** (2 points)

17. Which function has zeros of -4 and 2?

****

**PART II** (2 points)

18. The graph of the function  is given below.



Could the factors of  be  and ? Based on the graph, explain why or why *not*.

**PART II** (2 points)

19. If the zeros of a quadratic function, *F*, are -3 and 5, what is the equation of the axis of symmetry of *F*? Justify your answer.

**PART I** (2 points)

20. Wenona sketched the polynomial *P(x)* as shown on the axes below.



Which equation could represent *P(x)*?

(1) 

(2) 

(3) 

(4) 

**PART I** (2 points)

21. Abigail’s and Gina’s ages are consecutive integers. Abigail is younger than Gina and Gina’s age is represented by *x*. If the difference of the square of Gina’s age and eight times Abigail’s age is 17, which equation could be used to find Gina’s age?

(1)  (3) 

(2)  (4) 

**PART II** (2 points)

22. If  and , determine the value(s) of *x* that satisfy the equation .

**PART III** (4 points)

23. Given: 

Solve the equation  algebraically for *x*, to the *nearest tenth*.

Explain why you chose the method you used to solve this quadratic equation.

**PART IV** (6 points)

24. A rectangular picture measures 6 inches by 8 inches. Simon wants to build a wooden frame for the picture so that the framed picture takes up an area of 100 square inches on his wall. The pieces of wood that he uses to build the frame all have the same width.

Write an equation that could be used to determine the width of the pieces of wood for the frame Simon could create.

Explain how your equation models the situation.

Solve the equation to determine the width of the pieces of wood used for the frame, to the *nearest tenth of an inch*.