**Algebra 1 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Cumulative Exam 7.1-8.2 Review Date:\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_**

Section 1: Perform the indicated operation.

1.  2.  3. (x – 9)(x + 6)

4. (x + 4)2 5. (6x + 3)(4x – 8) 6. Find the area & perimeter:

 

Section 2: Factor the following expressions:

7. x2 – 12x 8. x2 – 15x + 44

9. 2x2 + 9x + 4 10. x2 – 9

11. 6x2 – 54x + 48 12. 6x2 + 8x – 8

13. x2 + 5x – 36 14. 2y2 – 8y

15. 2x2 + 20x + 48 16. 25x2 – 9

Section 3: Describe the characteristics:

17.



**Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Axis of Sym.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Y-Intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Zeroes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Extrema: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Max/Min Value: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**End Behavior:** As x 🡪 -∞, f(x) 🡪 \_\_\_\_\_\_.As x 🡪 ∞, f(x) 🡪\_\_\_\_\_\_

18.



**Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Axis of Sym.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Y-Intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Zeroes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Extrema: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Max/Min Value: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**End Behavior:** As x 🡪 -∞, f(x) 🡪 \_\_\_\_\_\_.As x 🡪 ∞, f(x) 🡪\_\_\_\_\_\_

Section 4: Answer the following questions about transformations:

19. Describe the transformations and name the vertex: y = -2(x + 3)2 – 9

20. Describe the transformations from y = x2 to the graph at the right:

21. Create an equation to describe the following transformations:

 a. Opens down, shifts up 3 units and shrinks by ¼ b. Shifts left 7 and reflects across the x-axis

Section 5: Answer the following questions about parabolas and their characteristics:

22. Determine the form and associated characteristics: y = 2(x + 4)(x – 3)

23. Determine the form and associated characteristics: y = (x – 5)2 + 9

24. Determine the form and associated characteristics: y = -x2 + 6x – 1

25. Convert y = (x + 3)(x – 8) to standard form. What new characteristic can you give?

26. Convert y = x2 – 5x – 24 to factored form. What new characteristic can you give?

27. Convert y = x2 + 6x + 4 to vertex form. What new characteristic can you give?

28. Convert y = (x + 2)2 – 5 to standard form. What new characteristic can you give?

29. Write an equation to describe the following characteristics:

 a. x-intercepts of (7, 0) and (-2, 0) and graph opens up b. Vertex of (-5, -2) and graph has a maximum

30 Write an equation in vertex, factored, and standard form to describe the following graphs:

 a. b.



Vertex Form: Vertex Form:

Intercept Form: Intercept Form:

Standard Form: Standard Form: