**Algebra 2**

**Semester Exam REVIEW**

**SHOW ALL YOUR WORK**

1. Sketch the graph of the square root parent function.

2. Write the equation for the graph below.



3. What is the equation of *y* = *x*2 once it has been reflected, shifted up 1 and left 7 units?

4. What is the function f(x) = x2 after the transformations: a compression of ¼ and a shift up 2 units?

5. Sketch the graph of the function: f(x) = – (x – 2)2

6. Name the transformations for the function: f(x) = 5(x + 7)2

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7. Evaluate the function for f(7): f(t) = –2t2 + 9t

8. Evaluate the function for p(x + 2): p(x) = 4x – 5

9. Find f(2) from the graph.

10. Find the range for the graph.

11. Find the domain for the graph.

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12. Write the domain [-2, 5) in inequality notation.

13. Solve for x: 2(x + 4) + 6 = 14

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14. Solve for x: 4 + 3(2x + 3) = 12x – 5

15. Solve the absolute value equation: $2\left|x-5\right|=6$

16. Solve the absolute value equation: $\left|3x-6\right|+4=7$

17. Solve the absolute value inequality: $2 \left|4x-8\right| \geq 8$

18. Factor the quadratic expression: x2 – 9x + 20

19. Factor the quadratic expression: 3x2 + 13x – 10

20. Factor the quadratic expression: 4x2 + 14x + 12

21. Solve the quadratic equation by taking a square root: 5x2 – 6 = 134

22. Solve the quadratic equation by taking a square root: -4(x2 – 3) = -88

23. Solve the quadratic equation by taking a square root: -3 + 2x2 = 49

24. Solve the quadratic equation by completing the square: x2 + 14x = -34

25. Solve the quadratic equation by completing the square: 3x2 – 18x + 9 = -6