Algebra 2 4.1-4.5 Review

HW #48: SHOW ALL WORK on a separate piece of paper

Determine if each graph opens up or down and explain.

1. $y = 4 + 6x - 2x^2$
2. $y = -7 - 5x + 3x^2$

Find the vertex, A.O.S., max/min value, and determine if it's a max or min

3. $y = -3x^2 + 12x - 8$
4. $y = 7 - 8x - 2x^2$

Find the maximum value or minimum value for the function.

5. $f(x) = -x^2 + 6x + 4$
6. $f(x) = 4x^2 + 6x + 3$

Graph each function. Find the vertex, A.O.S., domain, range, intercepts, max/min value, and end behavior.

7. $y = x^2 - 2x - 4$
8. $y = -x^2 - 4x + 2$
9. $y = 2x^2 + x + 3$
10. $y = -(x+1)^2 - 2$
11. $y = (x+3)^2 + 2$
12. $y = 2(x+2)(x+4)$
13. $y = 3(x-5)(x-6)$
14. A rock is thrown from the top of a tall building. The distance, in feet, between the rock and the ground t seconds after it is thrown is given by $d = -16t^2 - 4t + 412$. How long after the rock is thrown is it 410 feet from the ground?
15. A football is released into the air at an initial height of 6 feet and an initial velocity of 30 feet per second. The football is caught at a height of 7 feet. Use the vertical motion model $h = -16t^2 + vt + h_0$ where h is the height, t is the time in motion, h_0 is the initial height, and v is the initial velocity, to find how long the football is in motion.

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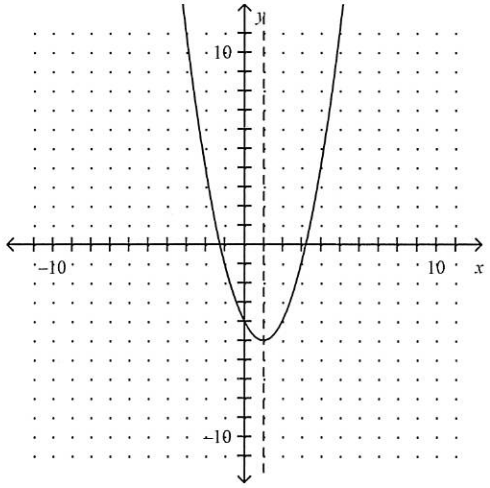
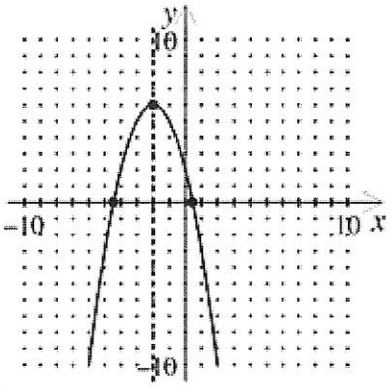
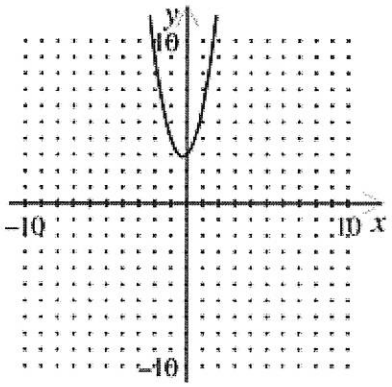
Answer Section

1. Down, a is negative
2. Up, a is positive
3. Vertex: (2, 4); AOS: $x = 2$; max = 4
4. Vertex: (-2, 15); AOS: x = -2; max = 15
5. maximum: 13
6. minimum: 0.75
7. 

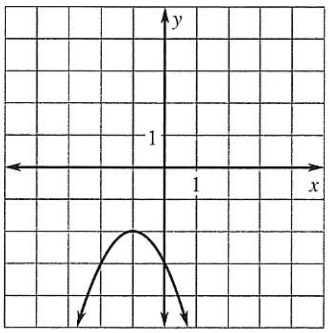
   axis of symmetry: $x = 1$
   vertex: (1, –5)
8. 

   vertex: $(-2,\ 6)$; axis of symmetry: $x = -2$;x-intercepts at $-4.4, 0.4$

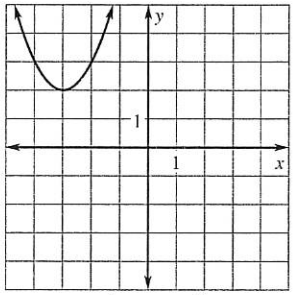
9.



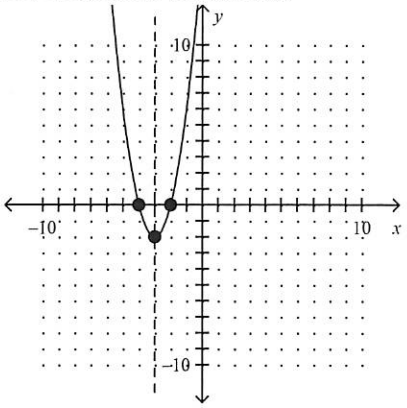
10.



11.

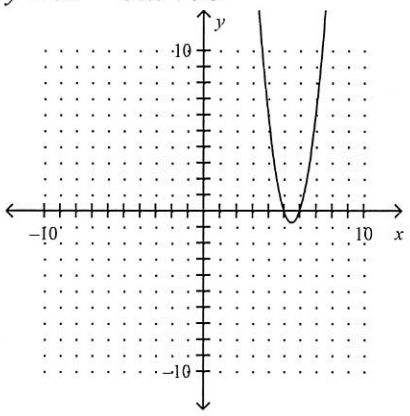


12.



vertex: (–3, –2)
axis of symm: $x = -3$
x-intercepts: –4, –2

13. $y = 3x^2 - 33x + 90$



14. $\frac{1}{4}$ sec

15. 1.84 seconds