

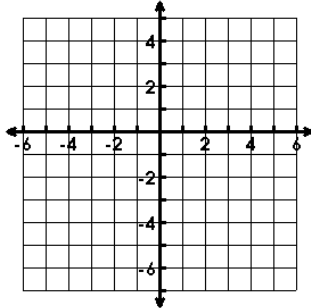
Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Unit 6 Review**

Graph the following equation. Then, write the characteristics for the graph.

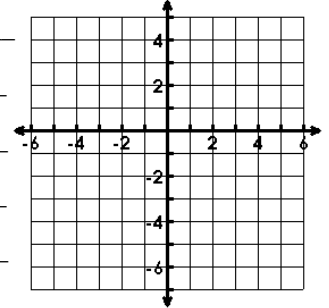
1.  $y = 2(x+1)^2 - 5$

- Vertex: \_\_\_\_\_
- Axis of Sym.: \_\_\_\_\_
- Domain: \_\_\_\_\_
- Range: \_\_\_\_\_
- Increase: \_\_\_\_\_
- Decrease: \_\_\_\_\_
- End Behavior:  $x \rightarrow$  \_\_\_\_\_,  $y \rightarrow$  \_\_\_\_\_  $x \rightarrow$  \_\_\_\_\_,  $y \rightarrow$  \_\_\_\_\_

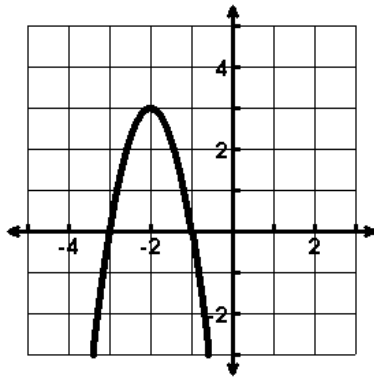


2.  $y = -x^2 + 4x$

- Vertex: \_\_\_\_\_
- Axis of Sym.: \_\_\_\_\_
- Zeroes: \_\_\_\_\_
- Y-int: \_\_\_\_\_
- Increase: \_\_\_\_\_
- Decrease: \_\_\_\_\_
- Extrema: \_\_\_\_\_



3.

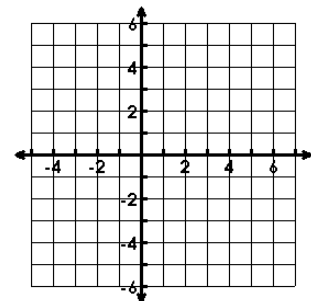


- Describe the transformations:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- Write the equation in vertex form: \_\_\_\_\_

- Roots: \_\_\_\_\_
- Avg. Rate of Change  $-3 \leq x \leq -2$ : \_\_\_\_\_

4. Sketch the quadratic function using the given information:

Domain : all reals  
 Range :  $(-\infty, 4]$   
 Increasing :  $(-\infty, 2)$   
 Decreasing :  $(2, \infty)$



Describe the transformations to the parent function in the given equations.

5.  $y = -(x+2)^2 - 5$

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

Write the quadratic equation of the graph in vertex form that has been....

7. shifted down 1 and shrunk by a factor of  $\frac{1}{2}$ : \_\_\_\_\_

8. reflected over the x-axis and has shifted right 2: \_\_\_\_\_

Change the equations to standard form.

9.  $y = 2(x - 1)^2 + 4$

10.  $y = -(x + 4)^2 - 6$

Change the equations to vertex form. SHOW ALL WORK by hand.

11.  $y = -3x^2 + 6x - 2$

12.  $y = 2x^2 + 8x + 1$

An object is projected into the air with a path described by the function  $h(t) = -16t^2 + 96t + 160$  where  $h$  is the height above the ground in feet and  $t$  is the time in seconds since the object started along the path.

13. Find the time the object changes direction.

14. Find the maximum height of the object.

15. Describe the location of the object at 2.5 seconds.

16. How long was the object in the air?

17. Compare: Which quadratic has the highest y-intercept? Which quadratic has the steepest rate of change from  $x_1 = 1$  to  $x_2 = 2$ ?

A.  $y = -x^2 + 4x + 6$

B.

X	Y
0	-26
1	-12
2	-2
3	4
4	6
5	4
6	-2

C.

