

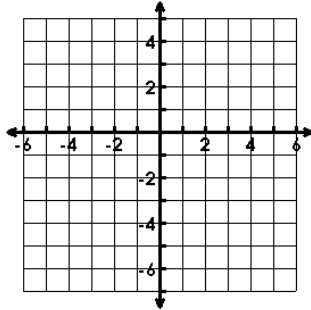
Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Unit 3B Review**

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

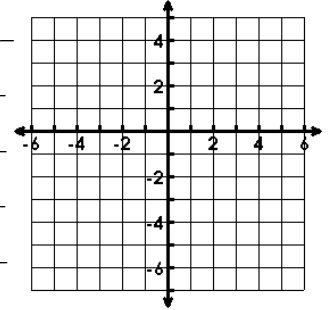
1.  $y = 2(x+1)^2 - 5$

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

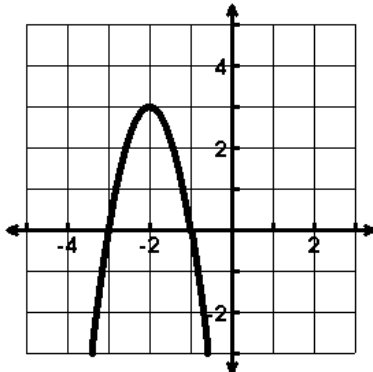


2.  $y = -x^2 + 4x$

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



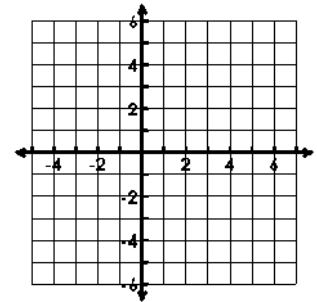
3.



- Describe the transformations:  
 \_\_\_\_\_  
 \_\_\_\_\_
- Roots: \_\_\_\_\_
- Avg. Rate of Change  
 $-3 \leq x \leq -2$ : \_\_\_\_\_
- Write the equation in vertex form: \_\_\_\_\_

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.

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.

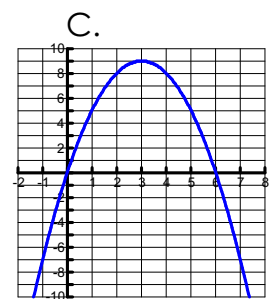
16. Describe the location of the object at 4.1 seconds.

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



**18. Identify the Characteristics from the given function.**

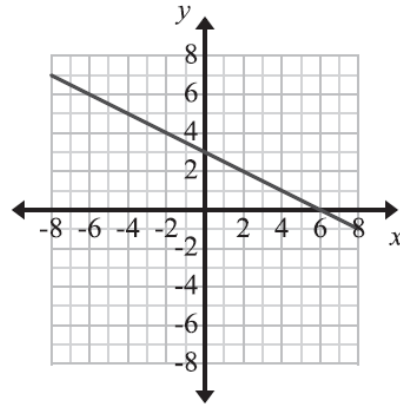
Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Intercepts: \_\_\_\_\_

Increasing / Decreasing: \_\_\_\_\_

Max or Min: \_\_\_\_\_



**19. A taxi company in Atlanta charges \$2.75 per ride plus \$1.50 for every mile driven. Write the equation for the line, and determine the key features of this function.**

Equation: \_\_\_\_\_

Discrete or Continuous: \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Intercepts: \_\_\_\_\_

Increasing or Decreasing: \_\_\_\_\_

Max or Min: \_\_\_\_\_

