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

**State the characteristics for the given graph.**

1. 
* vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* zeros: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* increasing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* decreasing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* rate of change: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Describe the transformation & write an equation for each function in vertex form.**



* description: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1.

![[image]]()

* description: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1.

**Describe the transformations to the parent graph for each equation.**

1.
2.

**Write the quadratic equation of the graph that has been…**

1. shifted down 4 units and left 9 units.
2. reflected over the x-axis and has a vertical shrink (horizontal stretch) by a factor of 1/5.

**Sketch the quadratic function.**

![[image]]()![[image]]()

**Change the following equations to standard form. SHOW ALL WORK!**

1.

**Change the following equations to vertex form. SHOW ALL WORK!**

**Graph the function given below and then, answer the questions in comparing the 2 functions.** 

5



1. Find the vertex for both functions.
2. Which function reached a higher point?
3. Which function had the greatest rate of change from

x1 = 0 to x2 = 2?

*g(x)*

**Multiple Choice**

1. What is the vertex and axis of symmetry of the quadratic: ?
2. What is the vertex and axis of symmetry of the quadratic: ?

![[image]]()

For #19 & 20, use the information for a given quadratic function:

1. Sketch the graph to the right using the information below

Domain:  Increasing: Range:  Decreasing:

There is no vertical or horizontal stretch (a = 1)

1. What is the equation for the axis of symmetry?
2. x = -4
3. x = 0
4. x = 2
5. x = 3
6. What is the end behavior for the graph of ?
7. x 🡪 ∞, f(x) 🡪 ∞ and x 🡪 - ∞, f(x) 🡪 ∞
8. x 🡪 ∞, f(x) 🡪 -∞ and x 🡪 - ∞, f(x) 🡪 -∞
9. x 🡪 ∞, f(x) 🡪 ∞ and x 🡪 - ∞, f(x) 🡪 -∞
10. x 🡪 ∞, f(x) 🡪 -∞ and x 🡪 - ∞, f(x) 🡪 ∞
11. Which of the following graphs best represents the function: ?
12. ![[image]]()
13. ![[image]]()
14. ![[image]]()
15. ![[image]]()



23. Which of the following graphs best represents the function:





24. A ball is hit into the air from a height of 4 feet. The function h(t) = -16t2 + 120t + 4 can be used to model the height of the ball where *t* is the time in seconds after the ball is hit.

 a. How long before the ball hits the ground?

25. Elizabeth reads about a rocket whose path can be modeled by the function

 h(t) = -16t2 + 180t + 15.

 a. How long will it take the rocket to reach its maximum height?

 b. What is the maximum height of the rocket?