1. Describe how the *g(x)* compares to the parent graph 

 a.  b.  c. 

2. Find the average rate of change over the interval for

 a.  b. 

3. Identify the vertex and axis of symmetry for the following quadratics. Then graph

 a.  b.  c. 

4. Find the equation of the parabola given by:

a. b. c. Vertex of  and through the point 

5. Porter kicks a soccer ball that is 2 feet off the field. If the vertex is at (15,21) find an equation of the quadratic that models this kick in vertex form.

6. Identify the y-intercept, axis of symmetry and the vertex for the following quadratics. Then graph 2 of them.

a.  b.  c. 

7. Put each function into standard form.

 a.  b. 

8. Use the Vertical motion formula for the following problems. Given the information given to you, write an equation and find the maximum height of each problem.

 a. Initial velocity is 48 ft/sec and initial height is 25 feet

b. Ball thrown straight up with an initial velocity of 64 ft/sec and it leaves the hand at 5 feet.

 c. Penny dropped from the top of the Columbia center in Seattle from a height of 937 feet

9. A disc is thrown in the air with an upward velocity of 20 ft/sec. It leaves the hand at 6 feet. Use the vertical motion formula to write an equation for the disc’s height as a function of time.

a. What is the maximum height the disc reaches?
b. How long does it take for the disc to reach the height?
c. How high is the disc after 1 second?

10. You have a pool that has the dimensions of 20 feet by 40 ft. You want to add a deck that is x feet wide around the entire pool. Draw a picture depicting this situation. Write a quadratic function in standard form that represents the total area of the pool and deck.

11. The length of a rectangular park is twice its width. The park is surrounded by at 3 foot wide walking path. Write a quadratic function in standard form that represents the total area of the park and path.

12. Write an equation of a quadratic graph *g(x)* that is a transformation of  by:

 a. right 5 units, down 2 and is narrower than *f(x)*

 b. reflected over the x-axis, up 3 units

 c. wider than *f(x)*, left 14 units

13. Find the x-intercepts and the vertex of the following quadratics.

 a.  b.  c. 

14. Find the x-intercepts and the vertex then graph 