Five with Ferster

(formerly known as Fun with Ferster, but sometimes, it's good to return to your roots ☺)

**Day 2--Quadratic Equations with Real Solutions and Quadratic Functions**

The following set of problems is intended to reacquaint you with some of the problems from the pre-test that deal with the solution of quadratic equations that have real solutions, and quadratic functions! ☺ Relax, take a few minutes, by yourself, or with a friend, and see what you can do with these.

**MULTIPLE CHOICE**

1. What is the nature of the solutions of the equation ?

**A**. They are real, rational, and unequal

**B**. They are real, rational, and equal

**C.** They are real, irrational, and unequal

**D.** They are not real--they are complex.

2. Which of the equations listed below has real, rational roots that are **EQUAL**?

**A**.  **B**. 

**C.**  **D.** 

3. Solve the quadratic equation: .

**A**.  **B**. 

**C.**  **D.** 

**OPEN ENDED**

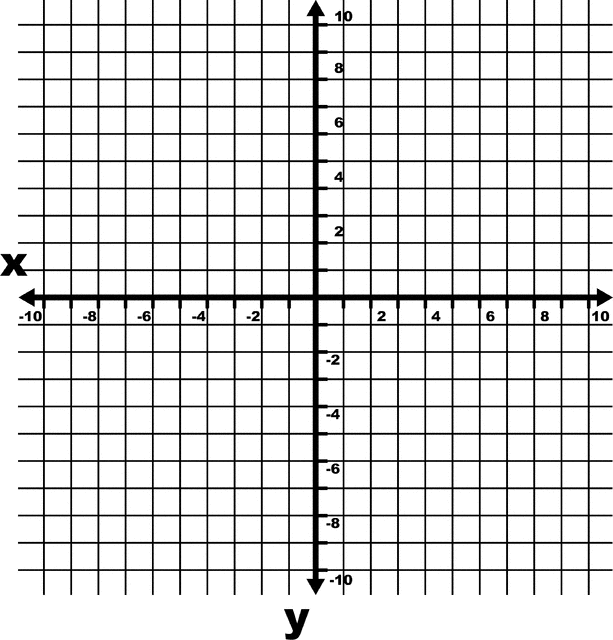
4. Consider the quadratic function .

A. Determine the y-intercept of the function.

B. Determine the zeros (x-intercepts) of the function.

C. Determine the vertex of the function.

D. Sketch a graph of the function on the grid below. Clearly indicate the results from parts A, B, and C on your graph.



5. The Phillie Phanatic’s hot dog launcher shoots a hot dog from ground level. The height of the hot dog H in feet after t seconds is given by the function. .

A. Find ,,, and 

B. Why are some of the outputs from part A equal?

C. Graph the function, and determine at what instant the hot dog is at its highest point. How high is the hot dog at that instant?

D. How long does it take the hot dog to hit the ground?