GRAPHING QUADRATIC FUNCTIONS

INVESTIGATING STANDARD FORM : $y = ax^2 + bx + c$

The value of the parameters "a", "b" and "c" alter the graph of the parabola. In this investigation, we will use an online interactive website
to determine which properties are affected by changing the value of each parameter.

1. Start by opening up the interactive by clicking here. You can also copy and paste the following link into your search engine.
http://www.analyzemath.com/quadraticg/quadraticg.htm

2. Scroll down to

Interactive Tutorial (1)
The button below starts the applet on a separate large screen.

(click here to)

3. And Click to enter the Interactive.

Part A: Investigating the Family of Quadratic Relations by Changing the Parameter "a"

Start by setting the parameters to a = 1, b = 0 and c = 0.

Use the Left and Right Cursor Keys to increase or decrease the value of the parameter "a".

Summary of Altering the Parameter "a".

*   When "a" is a positive number the graph opens _____. When "a" is a negative number the graph opens_____.

*   When a = 0, what happens to the graph?

*   When we increase the value of positive "a" the graph

*   When we decrease the value of negative "a" the graph

Part B: Investigating the Family of Quadratics by Changing the Parameter "b"

Start by setting the parameters to a = 1, b = 0 and c = 0.

Use the Left and Right Cursor Keys to increase or decrease the value of the parameter "b".

Summary of Altering the Parameter "b".

- When we increase the value of "b" the axis of symmetry moves to the:
       LEFT   RIGHT

- When we decrease the value of "b" the graph the axis of symmetry moves to the:
       LEFT   RIGHT

- Does the shape of the graph change?   YES   NO

Part C: Investigating the Family of Quadratics by Changing the Parameter "c"

Start by setting the parameters to a = 1, b = 0 and c = 0.

Use the Left and Right Cursor Keys to increase or decrease the value of the parameter "c".

Summary of Altering the Parameter "c".

- When we increase the value of "c" the graph moves: UP   DOWN

- When we decrease the value of "c" the graph moves: UP   DOWN

- Does the shape of the graph change?   YES   NO

- Develop a conjecture discussing the parameter "c" and the y-intercept of the graph?