

GRAPHING QUADRATIC FUNCTIONS

INVESTIGATING Vertex Form : $y = a(x - h)^2 + k$

The value of the parameters “a”, “h” and “k” 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.

Start by opening up the interactive by [clicking here](http://www.ronblond.com/M11/QFA.CSF.APPLET/index.html). You can also copy and paste the following link into your search engine.

<http://www.ronblond.com/M11/QFA.CSF.APPLET/index.html>

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

Start by setting the parameters to $a = 1$, $h = 1$ and $k = 1$.

Use the Up and Down 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
- Does changing the value of "a" change the location of the vertex? YES NO

Part B: Investigating the Family of Quadratics by Changing the Parameter "h" and "k"

Start by setting the parameters to $a = 1$, $h = 0$ and $k = 0$.

Use the Up and Down Cursor Keys to increase or decrease the value of the parameter "h" and "k".

Summary of Altering the Parameter "h" and "k"

- When we increase the value of "h" the axis of symmetry moves to the:
LEFT RIGHT
- When we decrease the value of "h" the graph the axis of symmetry moves to the:
LEFT RIGHT
- Does changing the value of "h" change the shape of the graph?
YES NO
- When we increase the value of "k" the parabola moves:
UP DOWN
- When we decrease the value of "k" the parabola moves:
UP DOWN
- The coordinate of the vertex of the parabola written in vertex form is
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