Investigating the Vertex Form of the Quadratic Function

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Name   Date

Use the interactive activity below to explore the effect of the parameters a,h,and k on the graph of the general quadratic function $f(x) = a(x - h)^2 + k$.

a. Double click on the variable you wish to study. Change the value stored in the variable by hitting the [Backspace], then entering a number and pressing [Enter]. Continue to change the value of that variable until you discover it's effect.
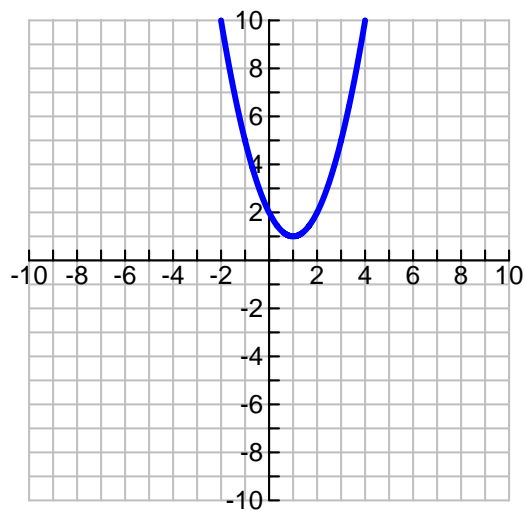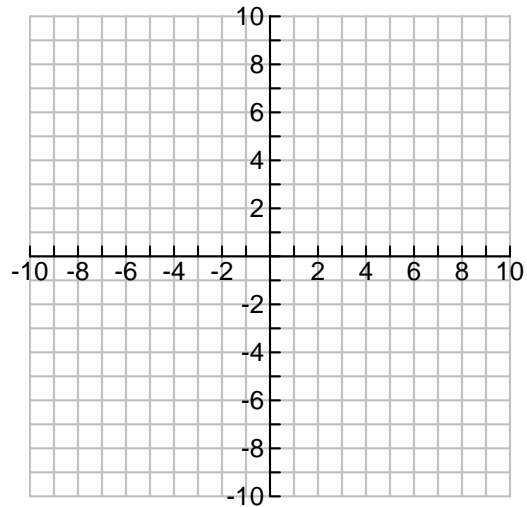
$a := 1$

$h := 1$

$k := 1$

$f(x) := a \cdot (x - h)^2 + k$
$f(x) = 1 (x-1)^2 + 1$

b. Predict the appearance of the graph of $y = -2(x + 1)^2 - 3$. Now check your answer by double clicking on the graph below and clicking in the box to the left of Y1.

c. Double click on the graph above and explore some other equations. Use this as a method to check your understanding.

d. What is the equation of the graph shown below? Double click on the graph and enter your guess in position Y1. You will be able to tell if you are correct when your guess is graphed. If you are not correct, try new values.