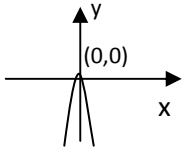
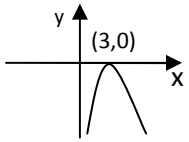
Lab Falling Objects NAME (S) : _____

Objective: Study the transformations of graph *y* with the effect of H-value and K-value on function *y= f(x).*

Consider the function $y = f(x) = A(x - H)^2 + K$

Complete the following table with the indicated values of A, H and K. Please note and make observations of the changes in the graphs as you sketch each graph on your graphing calculator. The first row is completed for you as an example.

Note: Student who has not completed the first part of this lab and wish to complete this part of the lab may use the value A = – 10 for all cases except the last case. (Please ask your instructor for confirmation)

A	H	K	Graphs of y = f(x)	Vertex= (H, K)	Resulting Equations in the form of $y = A(x-H)^2 + K$	Comments on the effect of H, K & changes on the graphs of *y = f(x)*
A = – 12	0	0		(0, 0)	$y = -12(x-0)^2 + 0$ $= -12x^2$	Parabola opens vertically downward with vertex at (0, 0) with a leading coefficient –12.
A = Use value A obtained from previous part of this lab	3	0		(3, 0)	$y = \_\_\_(x-3)^2+0$ $= \_\_\_\_(x-3)^2$	Parabola opens vertically downward with vertex at (3, 0) with a leading coefficient A = _____. Its graph is shifted to the right 3 units from the origin (0,0).
A = Use value A obtained from previous part of this lab	0	4				
A = Use value A obtained from previous part of this lab				(3, 4)		
A = Use value A obtained from previous part of this lab	– 3	–4				
A = Use value A obtained from previous part of this lab	H = Use H value from the bounce of the ball in previous part of this lab	K = Use K value from the bounce of the ball in previous part of this lab				
A = Value A should be consistent with the description for this graph	H = Value H should be consistent with the description for this graph	K = Value K should be consistent with the description for this graph				A parabola $y = x^2$ opens upward with a leading coefficient of 1/3. This graph is shifted to the left 5 units and is shifted down 4 units. The vertex is at (_____, ____)