Mapping Notation

1. Converting the equation in vertex form to mapping notation.

Strategy:
- ➢ identify all transformations and describe them in words
- ➢ input the values of "h", "+/-, "a" and "k" into the mapping notation matrix

Mapping notation rules:

- HT right by "h" units = +"h"

- HT left by "h" units = - "h"

- R in the x-axis = -y

- VSE by a factor of "a" = ay

- VSC by a factor of "a" = ay

- VT up by "k" units = +"k"

- VT down by "k" units = -"k"

Example 1: Express transformations to $y = x^2$ using the mapping notation

|	Equation in vertex form	Transformations in words	Mapping notation
A	$y = -3x^2$		
B	$f(x) = 0.5(x + 1)^2$		
C	$y = (x - 5)^2 + 4$		
D	$y = -x^2 - 7$		
E	$g(x) = -7(x + 10)^2 - 3$		

Example 2: Express transformations to $y = x^2$ using the equation in vertex form

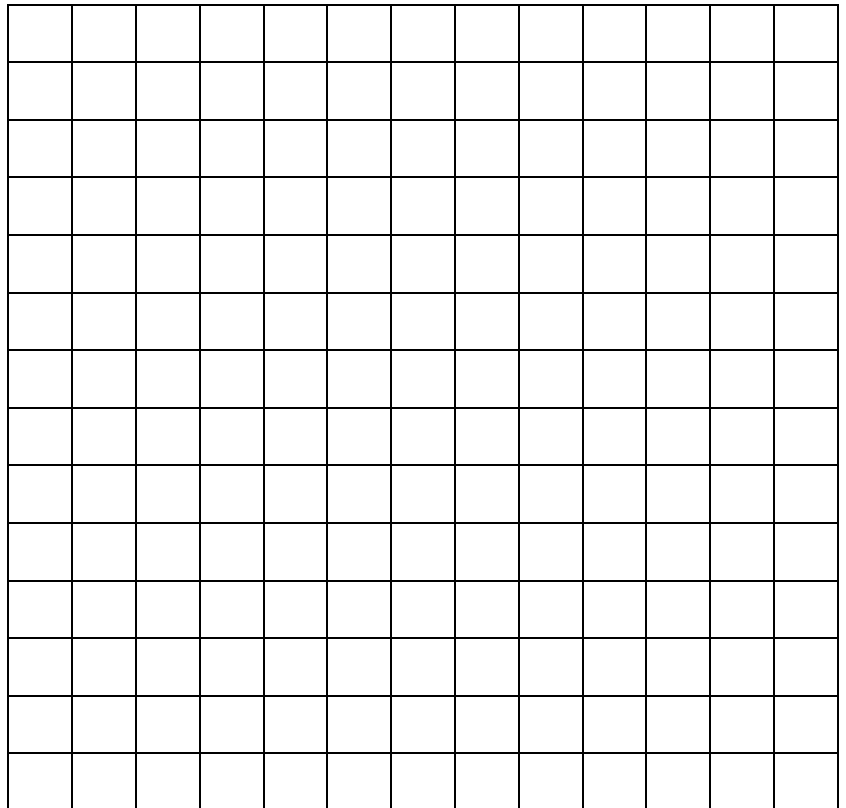|	Mapping notation	Transformations in words	Equation in vertex form
A	$(x, y) \rightarrow (x, -y + 10)$		
B	$(x, y) \rightarrow (x, -y + 8)$		
C	$(x, y) \rightarrow (x + 5, 3y - 1)$		
D	$(x, y) \rightarrow (x - 3, 0.5y + 7)$		
E	$(x, y) \rightarrow (x - 5, y)$		

2. Graphing a parabola using the mapping notation.

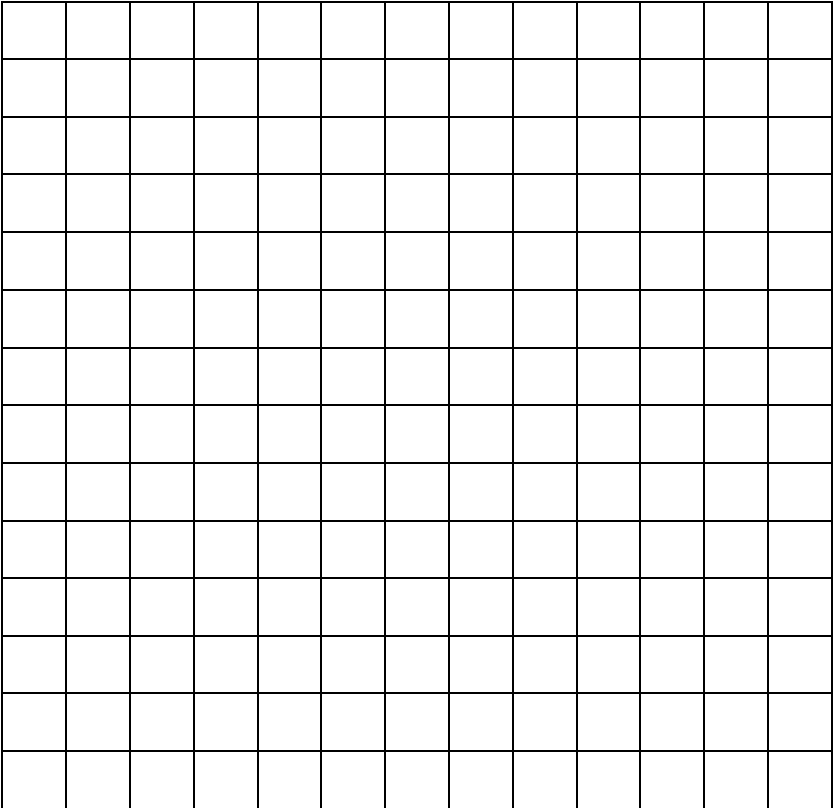Strategy: Describe all transformations in words before graphing

Ex. 1: Graph $(x, y) \rightarrow (x - 1, -y)$
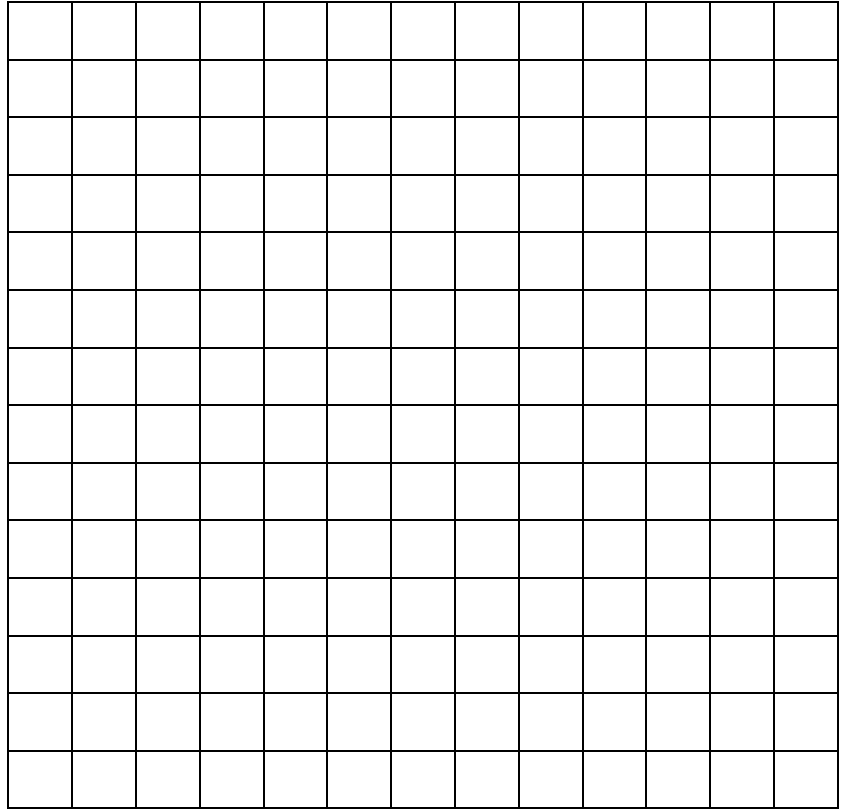
Ex. 2: Graph $(x, y) \rightarrow (x + 3, y - 2)$

Ex. 3: Graph $(x, y) \rightarrow (x + 4, -0.5y)$

Ex. 4: $(x, y) \rightarrow (x - 5, 2y - 7)$