COMBINATIONS OF TRANSFORMATIONS

PART 1 : For the image functions listed in the chart, describe in words all transformations:

Basic Graph	Image	Description of Transformations
$y = x^2$	$y = 2(x - 1)^2 + 4$	
$y = x^3$	$y = \frac{1}{2}x^3 - 2$	
$y = \sqrt{x}$	$y = \sqrt{2x + 4} - 1$	
$y = \lvert x \rvert$	$y = -\lvert 3x - 6 \rvert$	
$y = x^2$	$y = (-\frac{1}{2}x - 1)^2 + 4$	
$y = \sqrt{x}$	$y = -2\sqrt{x - 4} + 3$	

Part 2: Use the graphing calculators to graph each image function. Look at the graph to determine the DOMAIN and RANGE for each.

Basic Graph	Image	DOMAIN and RANGE
$y = x^2$	$y = 2(x - 1)^2 + 4$	
$y = x^3$	$y = \frac{1}{2}x^3 - 2$	
$y = \sqrt{x}$	$y = \sqrt{2x + 4} - 1$	
$y = \lvert x \rvert$	$y = -\lvert 3x - 6 \rvert$	
$y = x^2$	$y = (-\frac{1}{2}x - 1)^2 + 4$	
$y = \sqrt{x}$	$y = -2\sqrt{x - 4} + 3$	

PART 3 : For the image functions listed in the chart, state the mapping notation that describes the transformations:

Basic Graph	Image	Mapping Notation
$y = x^2$	$y = 2(x - 1)^2 + 4$	
$y = x^3$	$y = \frac{1}{2}x^3 - 2$	
$y = \sqrt{x}$	$y = \sqrt{2x + 4} - 1$	
$y = \lvert x \rvert$	$y = -\lvert 3x - 6 \rvert$	
$y = x^2$	$y = (-\frac{1}{2}x - 1)^2 + 4$	
$y = \sqrt{x}$	$y = -2\sqrt{x - 4} + 3$	

PART 4 : Use the mapping notation from PART 3 to determine the table of values and then graph the following image functions:

$y = 2(x - 1)^2 + 4$

$y = \sqrt{2x + 4} - 1$

$y = -\lvert 3x - 6 \rvert$