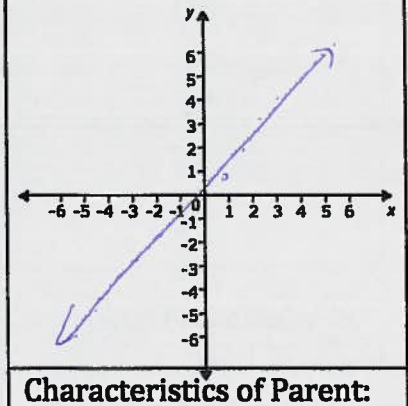
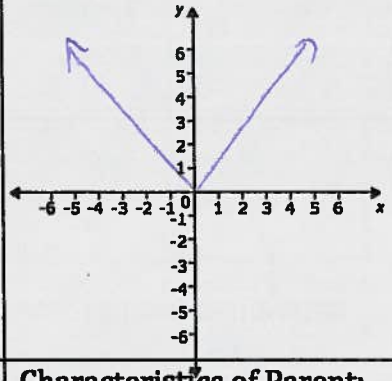
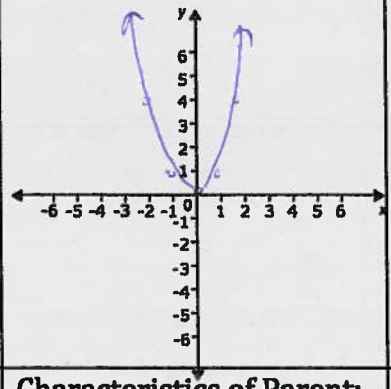
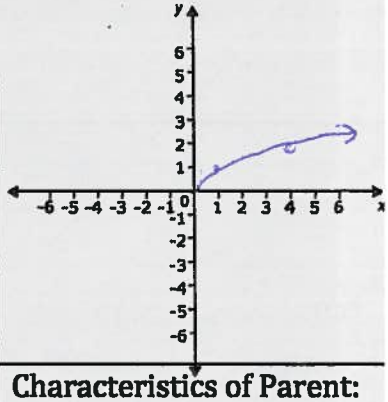
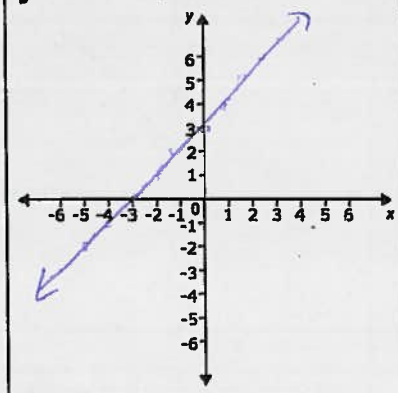
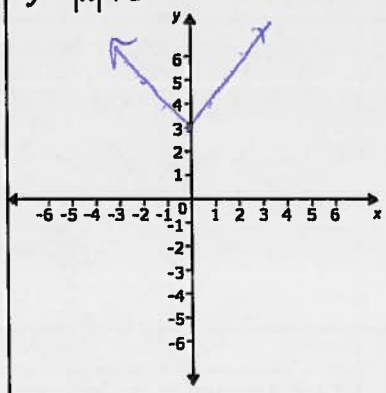
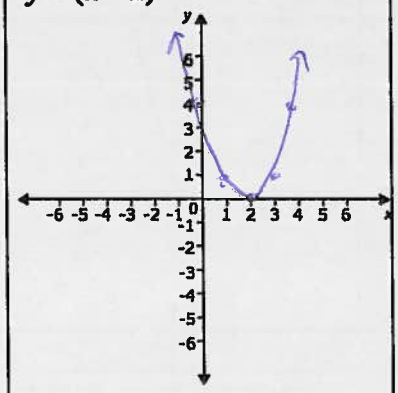
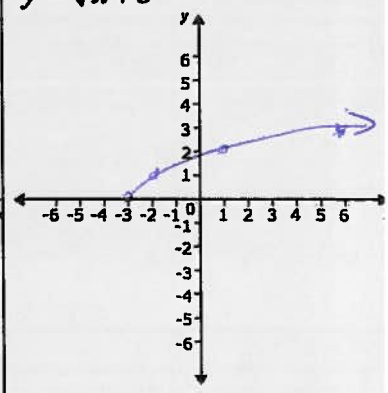
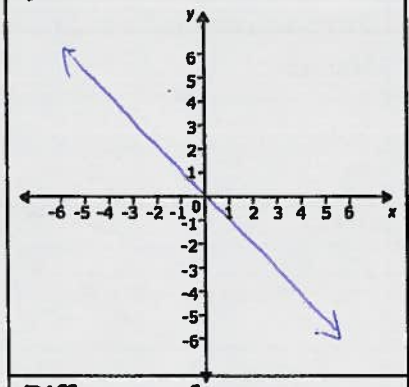
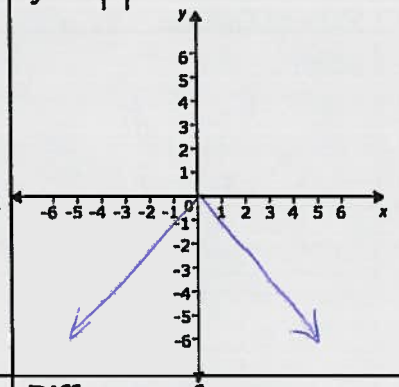
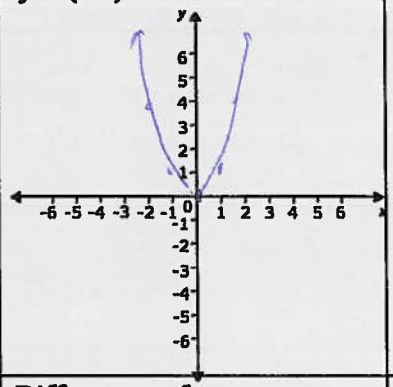
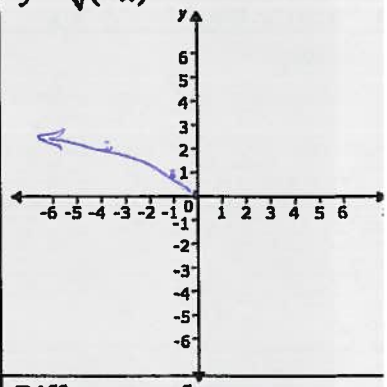
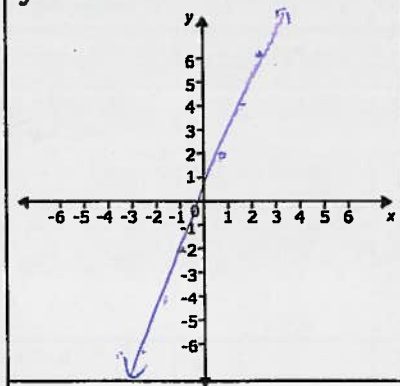
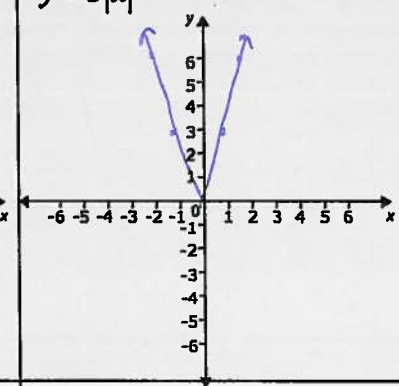
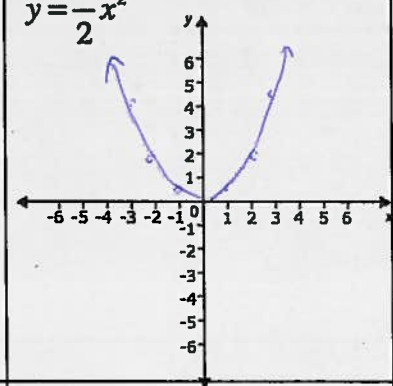
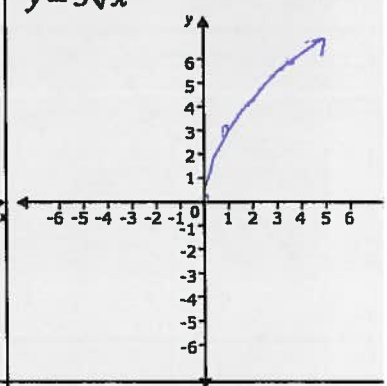
Introduction to Transformations

Name KEY

Graph the equations using your graphing calculator. Make a sketch of what you see.

Parent Graph: $y = x$ Name:	**Parent Graph: $y = \|x\|$** Name:	**Parent Graph: $y = x^2$** Name:	**Parent Graph: $y = \sqrt{x}$** Name:
			
Characteristics of Parent: Line Through origin (y-int = 0) Slope: 1 Goes up	**Characteristics of Parent:** "V" shape vertex on origin slope ±1 opens up	**Characteristics of Parent:** Parabola ∪ vertex on origin opens up	**Characteristics of Parent:** ½ Sideways Parabola Start on origin goes up
Adding and Subtracting:			
$y = x + 3$ 	$y = \|x\| + 3$ 	$y = (x-2)^2$ 	$y = \sqrt{x+3}$ 
How is this graph different from its parent? moved up 3	**How is this graph different from its parent?** moved up 3	**How is this graph different from its parent?** moved right 2	**How is this graph different from its parent?** moved left 3
1. What does **adding or subtracting** do to the graph? (choose one answer)	A. Stretches or Shrinks the graph compared to its parent graph	B. Translates the graph (moves it up/down or left/right) compared to the parent graph	C. Reflects the graph over the x-axis or y-axis

Multiplying by a negative:			
$y = -x$ 	$y = -\lvert x \rvert$ 	$y = (-x)^2$ 	$y = \sqrt{(-x)}$ 
Differences from parent: opposite direction flipped over x or y-axis	**Differences from parent:** opens down flipped over x-axis	**Differences from parent:** same flipped over y-axis	**Differences from parent:** goes left flipped over y-axis
2. What does **multiplying by a negative** do to the graph? (choose one answer)	A. Stretches or Shrinks the graph compared to its parent graph	B. Translates the graph (moves it up/down or left/right) compared to the parent graph	C. Reflects the graph over the x-axis or y-axis
Multiplying by a positive number:			
$y = 2x$ 	$y = 3\lvert x \rvert$ 	$y = \frac{1}{2}x^2$ 	$y = 3\sqrt{x}$ 
Differences from parent: steeper	**Differences from parent:** steeper / narrower	**Differences from parent:** wider / shallower	**Differences from parent:** steeper
2. What does **multiplying by a positive number** do to the graph? (choose one answer)	A. Stretches or Shrinks the graph compared to its parent graph	B. Translates the graph (moves it up/down or left/right) compared to the parent graph	C. Reflects the graph over the x-axis or y-axis