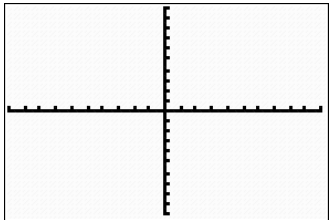
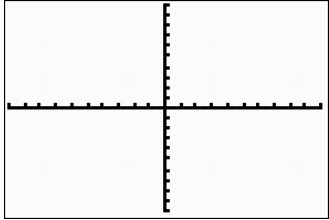
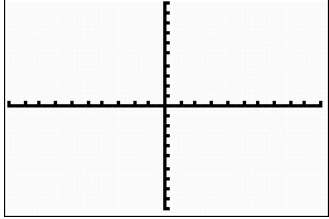


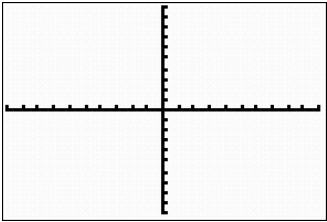
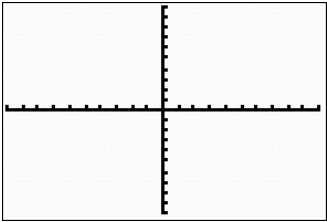
Calculator Lab: Translating Parabolas

$$y = a(x - h)^2 + k$$

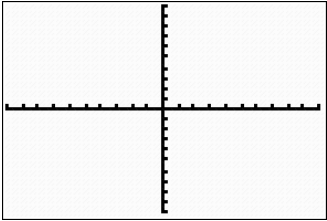
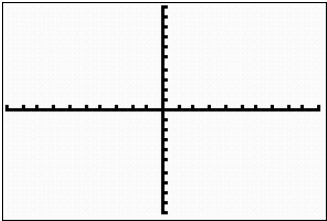
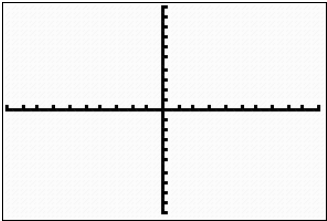
- Press Y= and make sure all Plots are off.
- Enter X^2 in Y1 make this graph bold (This is your parent graph)
- Enter the comparison equation in Y2
- Press ZOOM and select 6:Standard to view these graphs on the standard window.

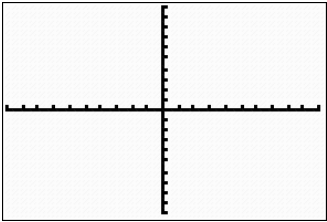
Part 1: Changing “a”

Equation	Graph	Vertex	Direction of Opening (circle one)	Max or Min (circle one)	How is it different than the parent?	What is a?
$y = x^2$			Up Down	Max Min	PARENT	
$y = 4x^2$			Up Down	Max Min		
$y = 0.25x^2$			Up Down	Max Min		

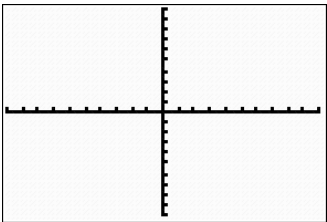
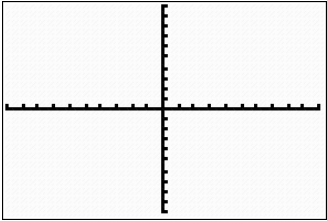
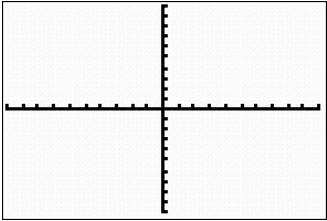
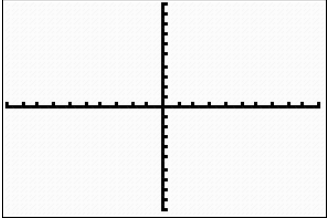
$y = -2x^2$			Up Down	Max Min		
$y = -0.5x^2$			Up Down	Max Min		

Part 2: Changing “k”

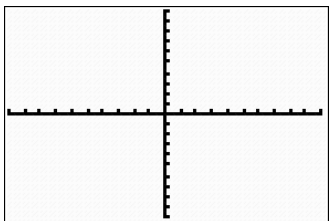
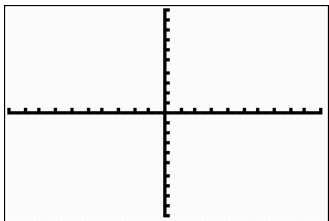
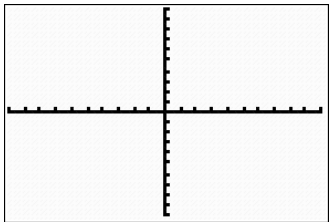
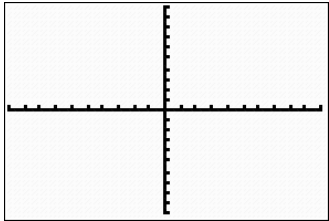
Equation	Graph	Vertex	Direction of Opening (circle one)	Max or Min (circle one)	How is it different than the parent?	What is k?
$y = x^2 + 4$			Up Down	Max Min		
$y = x^2 + 9$			Up Down	Max Min		
$y = x^2 - 4$			Up Down	Max Min		

$y = x^2 - 9$			Up Down	Max Min		
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Part 3: Changing “h”

Equation	Graph	Vertex	Direction of Opening (circle one)	Max or Min (circle one)	How is it different than the parent?	What is h?
$y = (x-2)^2$			Up Down	Max Min		
$y = (x-8)^2$			Up Down	Max Min		
$y = (x+3)^2$			Up Down	Max Min		
$y = (x+1)^2$			Up Down	Max Min		

Part 4: Putting it all together

Equation	Graph	Vertex	Direction of Opening (circle one)	Max or Min (circle one)	How is it different than the parent?
$y = (x-2)^2+4$			Up Down	Max Min	
$y = 5(x+1)^2+9$			Up Down	Max Min	
$y = 0.5(x-3)^2 - 4$			Up Down	Max Min	
$y = -1(x+4)^2 - 5$			Up Down	Max Min	

- Write an equation of a parabola that moves $y = x^2$ up 2 units, right 6 units, and opens down.
- Write an equation of a parabola that moves $y = x^2$ down 7 units, left 5 units, opens up, and is wider.