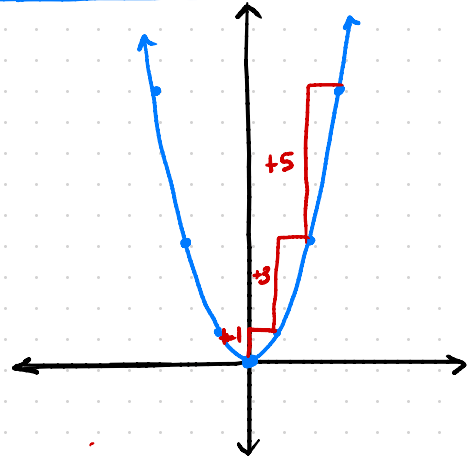


Notes: Quadratic Function Transformations

Parent Function: $y = x^2$

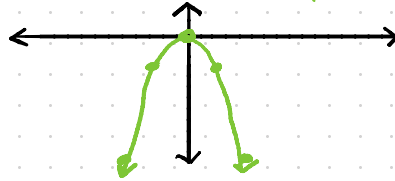
x	y	1st diff
-3	9	
-2	4	
-1	1	
0	0	
1	1	+1
2	4	+3
3	9	+5



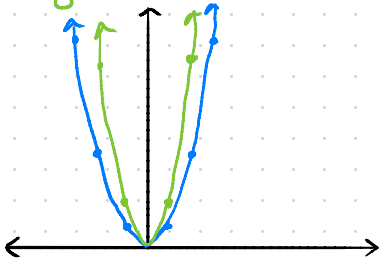
$$y = a(x - h)^2 + k$$

Transformations:

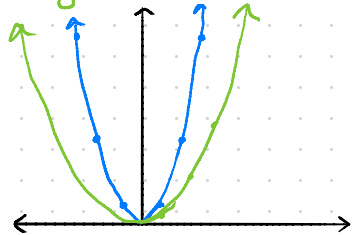
- If "a" is negative the parabola is reflected over the x-axis



- If $|a| > 1$ the parabola is vertically stretched (narrower)



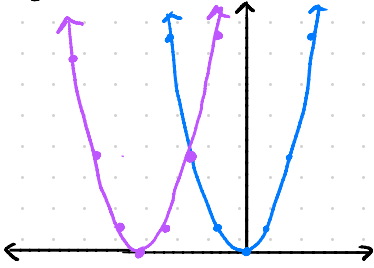
- If $|a| < 1$ the parabola is vertically shrunk (wider)



- If $h < 0$ the parabola translates or shifts left

$$y = (x - -5)^2$$

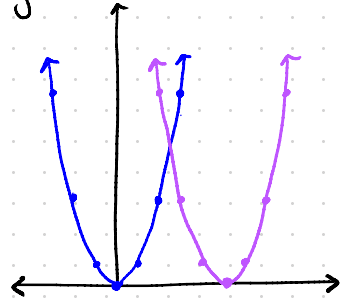
$$y = (x + 5)^2$$



- If $h < 0$ the parabola translates or shifts right

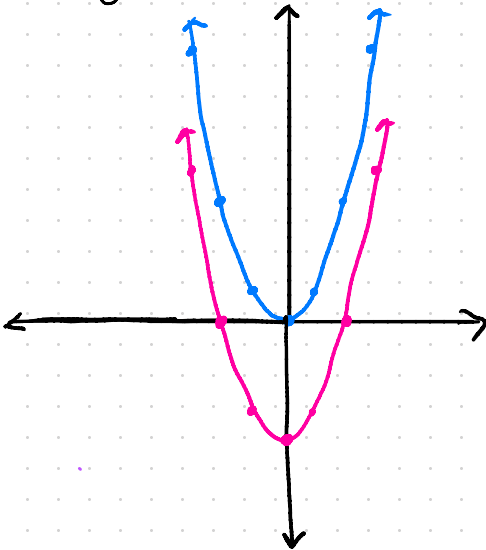
$$y = (x - +5)^2$$

$$y = (x - 5)^2$$



- If $k < 0$ the parabola translates or shifts down.

$$y = x^2 - k$$



- If $k < 0$ the parabola translates or shifts up.

$$y = x^2 + k$$

