10.2 Translating Parabolas

Line of Reflection
Line of Symmetry
Axis of Symmetry.
Paraboles
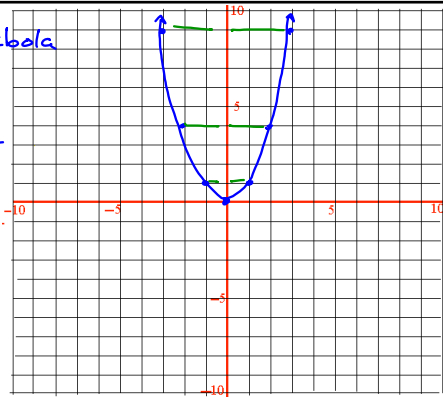

Quadratic Equation

$y = x^2$ graph is a parabola
symmetric
Vertex on the axis
of symmetry

Base Parabola

$y = x^2$

x	Y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

Translating Parabolas
(more)
Based on $y = x^2$
$y = (x - h)^2 + k$
h = horizontal
k = vertical

Base Parabola

$y = x^2$

x	Y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

Vertical+3
$y = x^2 + 3$
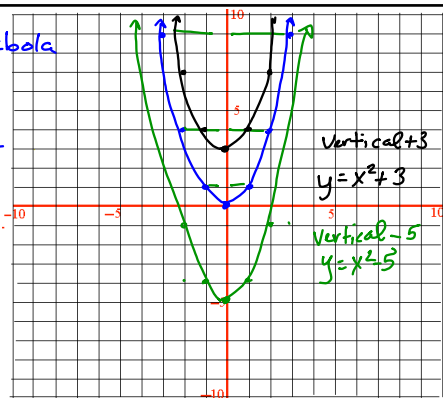
Vertical -5
$y = x^2 - 5$

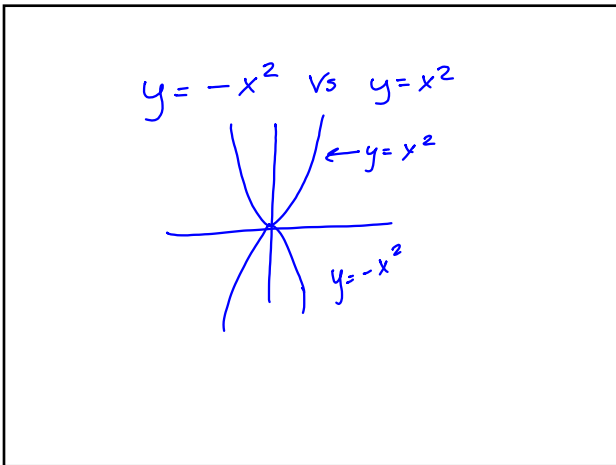
for k if + goes up
       if - goes down
$y = x^2 + k$ (vertical only)

for h if - goes right
       if + goes left
$y = (x - h)^2$ (horizontal only)

Base Parabola

$y = x^2$

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

Left 8
$y = (x-(-8))^2$
$y = (x+8)^2$
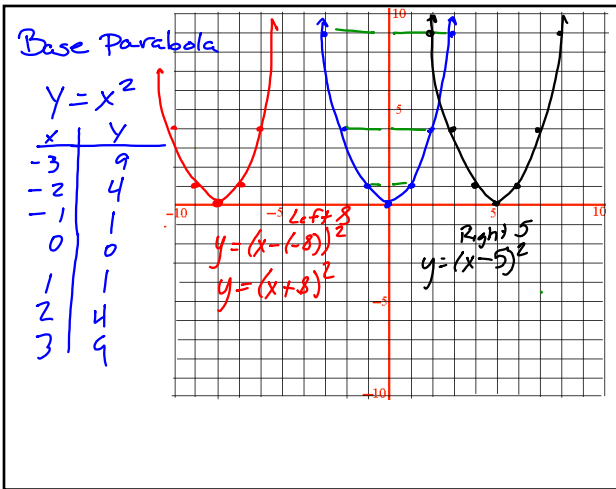
Right 5
$y = (x-5)^2$

Translating Both directions
Vertical and Horizontal

$y = (x-4)^2 + 2$
    Right 4 up 2

$y = (x+3)^2 + 1$
    Left 3 up 1

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

$y = -x^2$ vs $y = x^2$

$\leftarrow y = x^2$

$y = -x^2$

Vertex form
   for Parabolas

In $y = (x-h)^2 + k$
(h,k) is the vertex

vertex is at (5,3)
$y = (x-5)^2 + 3$

$y = (x+3)^2 - 2$ (-3, -2)