

Your Name

Mrs. Theo

3/18/21

Notes

Lesson 8.2

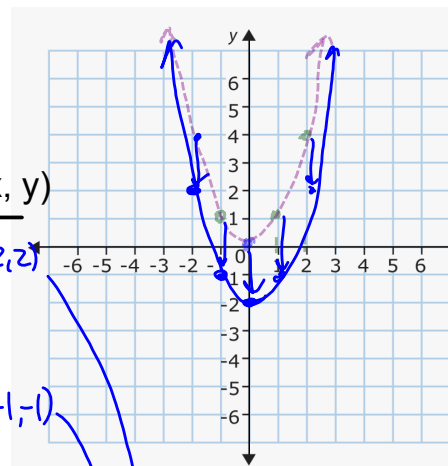
GRAPHING QUADRATIC FUNCTIONS

$$F(X) = AX^2 + C$$

Graphing
Vertical Shifts
in
Quadratic
Functions Via
XY Table

Graph $y = x^2 - 2$

x	$y = ()^2 - 2$	(x, y)
-2	$(-2)^2 - 2 = 4 - 2 = 2$	(-2, 2)
-1	$(-1)^2 - 2 = 1 - 2 = -1$	(-1, -1)
0	$(0)^2 - 2 = 0 - 2 = -2$	(0, -2)
1	$(1)^2 - 2 = 1 - 2 = -1$	(1, -1)
2	$(2)^2 - 2 = 4 - 2 = 2$	(2, 2)

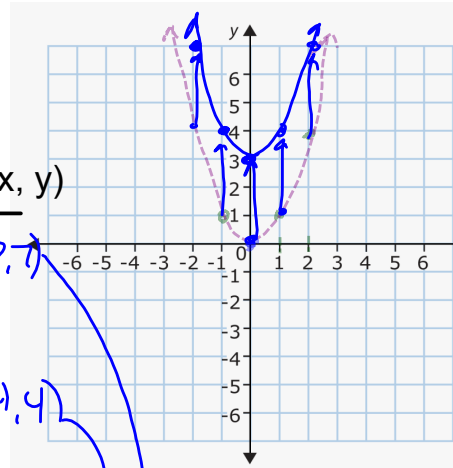


Describe the Shift

Vertical shift
down 2

Graph $y = (x)^2 + 3$

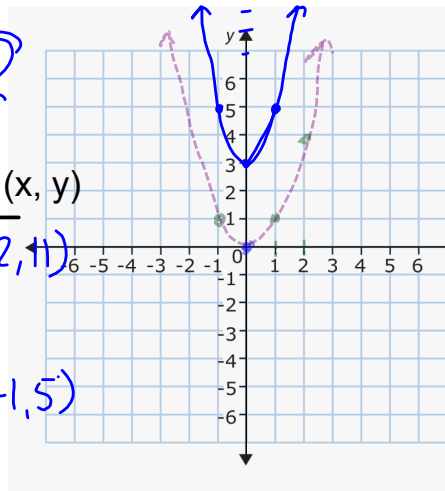
x	$y = ()^2 + 3$	(x, y)
-2	$(-2)^2 + 3$ $4 + 3 = 7$	$(-2, 7)$
-1	$(-1)^2 + 3$ $1 + 3 = 4$	$(-1, 4)$
0	$(0)^2 + 3 = 3$ $0 + 3$	$(0, 3)$
1	$(1)^2 + 3$ $1 + 3 = 4$	$(1, 4)$
2	$(2)^2 + 3$ $4 + 3 = 7$	$(2, 7)$



Describe the Shift
Vertical shift up 3
Vert.

Graph $y = 2(x)^2 - 1$
Stretch down

x	$y = 2()^2 + 3$	(x, y)
-2	$f(-2) = 2(-2)^2 + 3$ $2 \cdot 4 + 3$ $8 + 3 = 11$	$(-2, 11)$
-1	$f(-1) = 2(-1)^2 + 3$ $2 \cdot 1 + 3$ $2 + 3 = 5$	$(-1, 5)$
0	$f(0) = 2(0)^2 + 3$ $2 \cdot 0 + 3$ $0 + 3 = 3$	$(0, 3)$
1	$f(1) = 2(1)^2 + 3$ $2 \cdot 1 + 3$ $2 + 3 = 5$	$(1, 5)$
2	$f(2) = 11$	$(2, 11)$



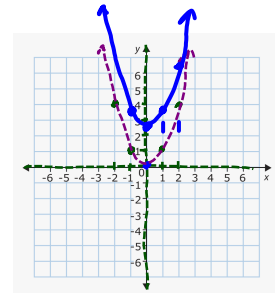
Describe the Transformations
Ver. Stretch by 2
Ver. Shift down 1

Summarize and Sketch a picture:

The function shifts Vertically Up

When the C value in back of x^2 is positive

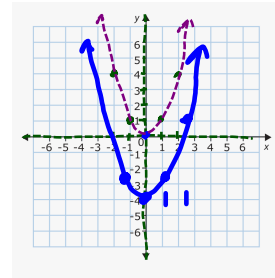
So I am adding to each y value



The function shifts Vertically Down

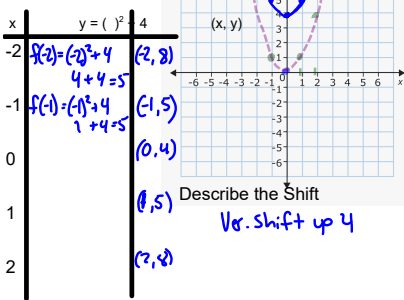
When the C value in back of x^2 is negative

So I am subtracting from each y value

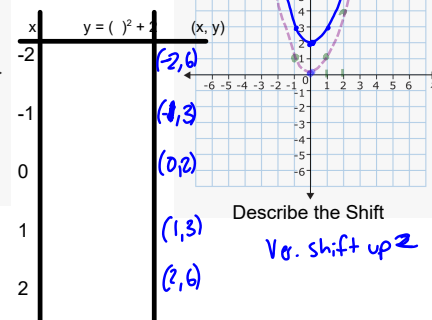


Homework Key

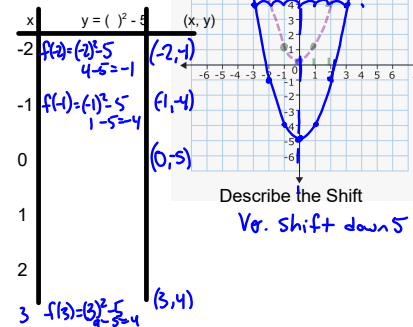
1. Graph $y = x^2 + 4$



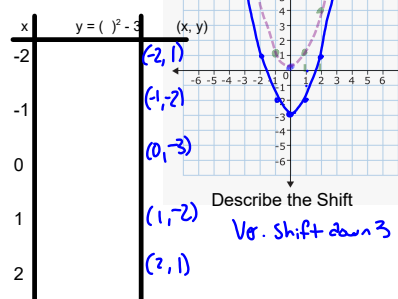
2. Graph $y = x^2 + 2$



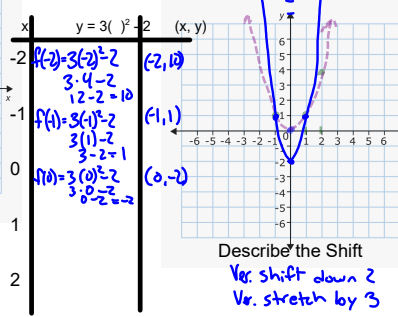
3. Graph $y = x^2 - 5$



4. Graph $y = x^2 - 3$



5. Graph $y = 3x^2 - 2$



6. Graph $y = -2x^2 + 3$

