April 13th

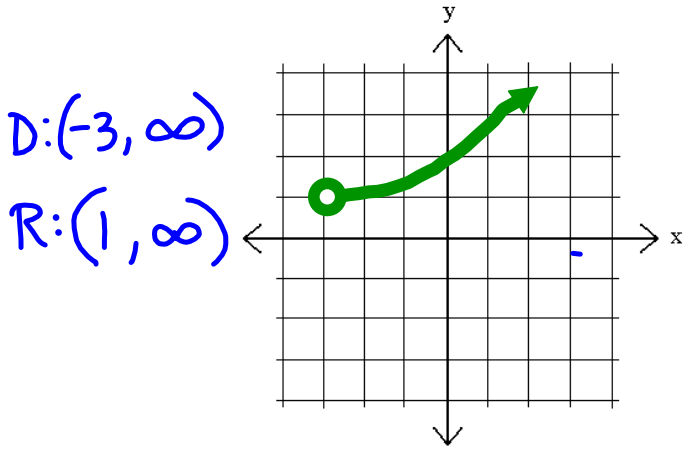
Due Today: 11.2

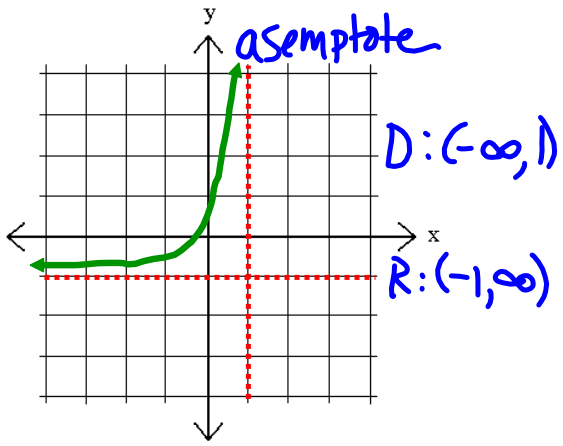
Due Next: 11.3

Unit 11: Function Operations

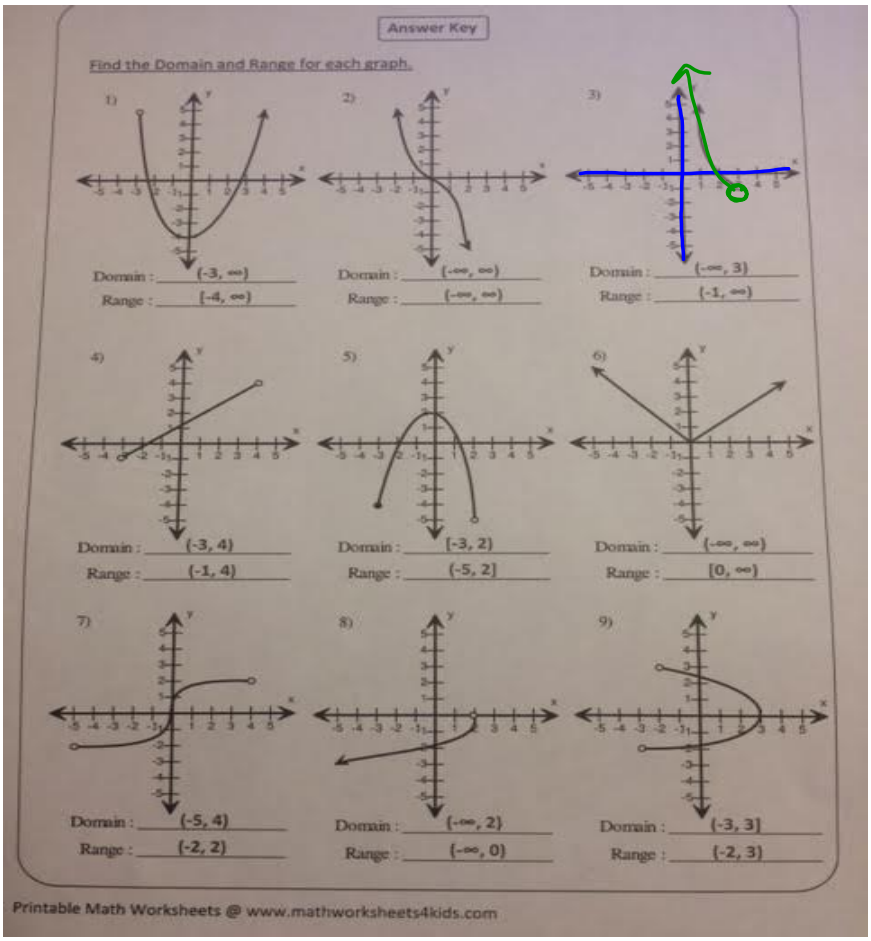
Lesson 11.3: Shifting Functions

Get Ready: State the domain and range for the following :





HW 11.2



Answer Key

Find the Domain and Range for each graph.

1) Domain : (-3, ∞) Range : [-4, ∞)

2) Domain : (-∞, ∞) Range : (-∞, ∞)

3) Domain : (-∞, 3] Range : (-1, ∞)

4) Domain : (-3, 4) Range : (-1, 4)

5) Domain : [-3, 2) Range : (-5, 2]

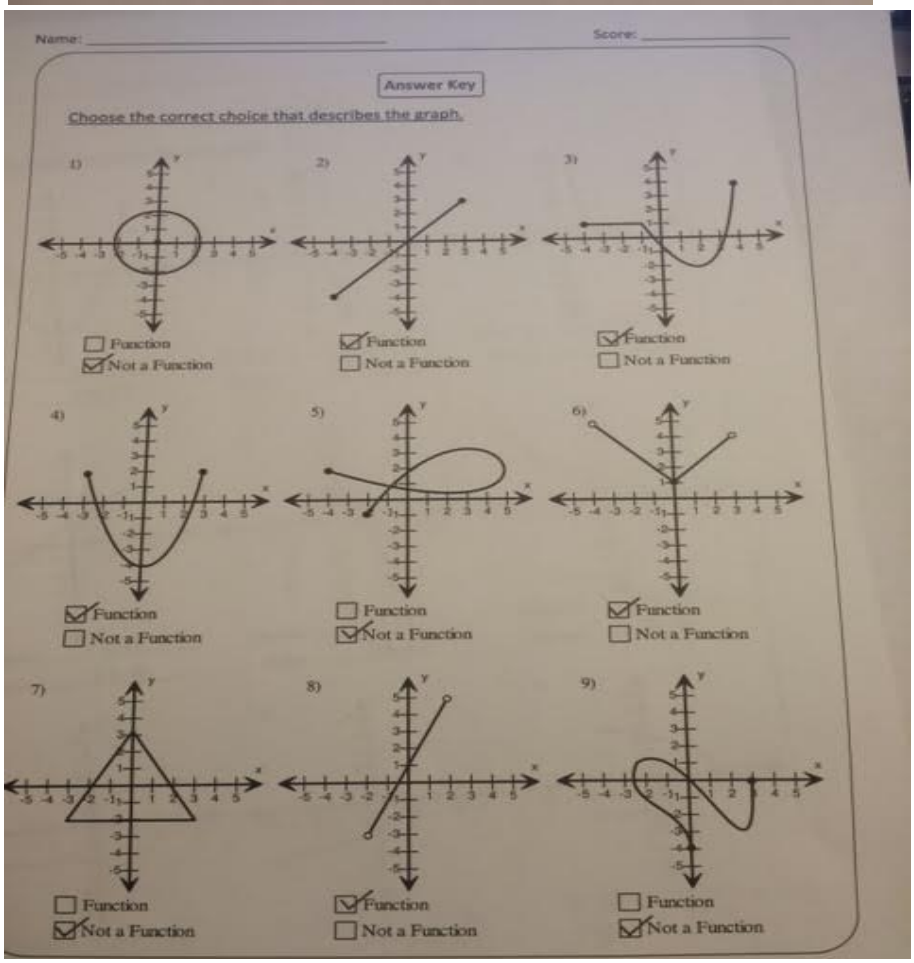
6) Domain : (-∞, ∞) Range : [0, ∞)

7) Domain : (-5, 4) Range : (-2, 2)

8) Domain : (-∞, 2) Range : (-∞, 0)

9) Domain : (-3, 3] Range : (-2, 3)

Printable Math Worksheets @ www.mathworksheets4kids.com



Name: Score:

Answer Key

Choose the correct choice that describes the graph.

1) ☐ Function ☑ Not a Function

2) ☑ Function ☐ Not a Function

3) ☑ Function ☐ Not a Function

4) ☑ Function ☐ Not a Function

5) ☐ Function ☑ Not a Function

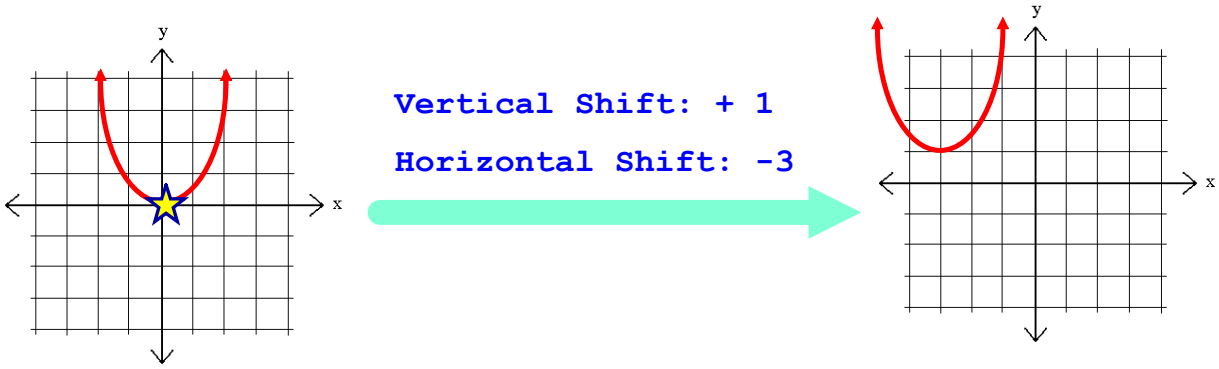
6) ☑ Function ☐ Not a Function

7) ☐ Function ☑ Not a Function

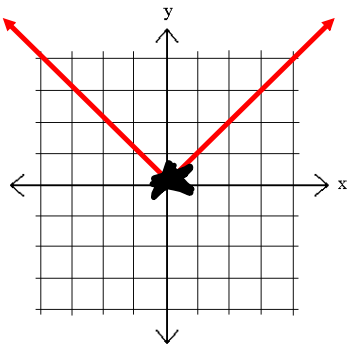
8) ☑ Function ☐ Not a Function

9) ☐ Function ☑ Not a Function

SHIFTING A FUNCTION: Moving a basic function from the origin horizontally and or vertically.



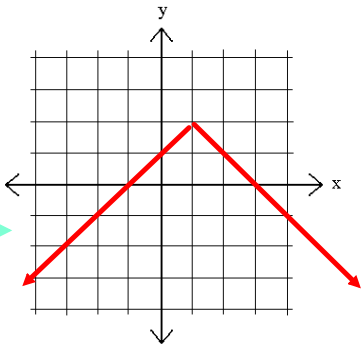
SHIFTING A FUNCTION: Moving a basic function from the origin horizontally and or vertically.



FLIP: NEGATIVE

Vertical Shift: + 2

Horizontal Shift: +1



Original Function	Shifted Function
$y = \|x\|$	$y = \|x - a\| + b$
$y = x^2$	$y = (x - a)^2 + b$

a = HORTIZONTAL SHIFTS *OPPOSITE DIRECTION*

b = VERTICAL SHIFTS

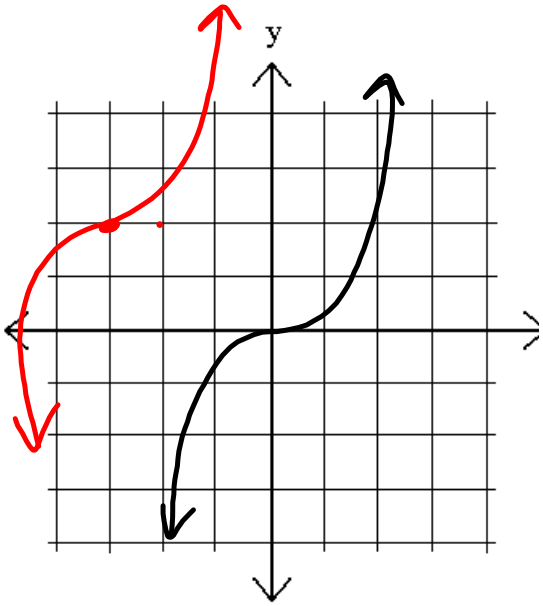
$y = (x + 3)^3 + 2$

Family Cubic

Vertical Shift: +2

Horizontal Shift:* -3

Negative Flip: NO



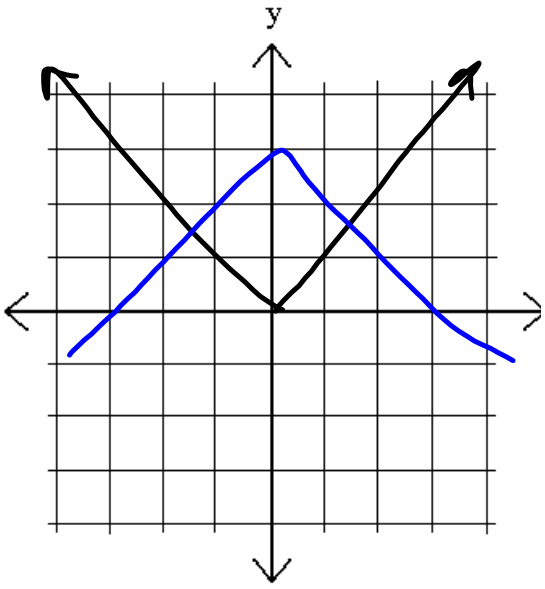
$y = -|x| + 3$

Family abs. value

Vertical Shift: + 3

Horizontal Shift:* —

Negative Flip: Yes



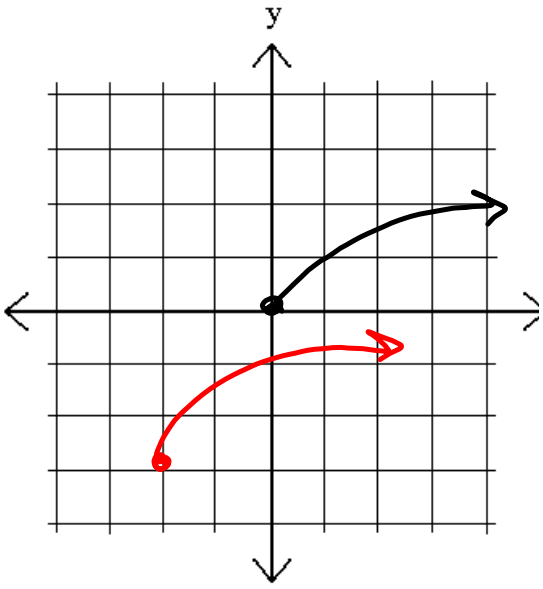
$y = \sqrt{x + 2} - 3$

Family Radical

Vertical Shift: -3

Horizontal Shift:* -2

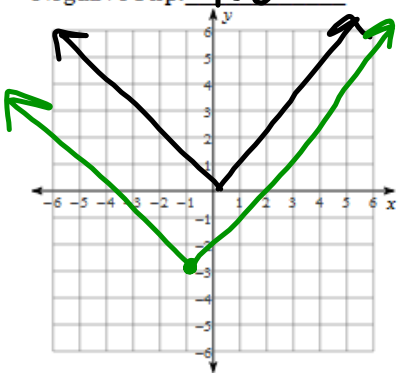
Negative Flip: –



For each of the following, draw the basic function first in pencil, then graph the shifted function in colored pencil.

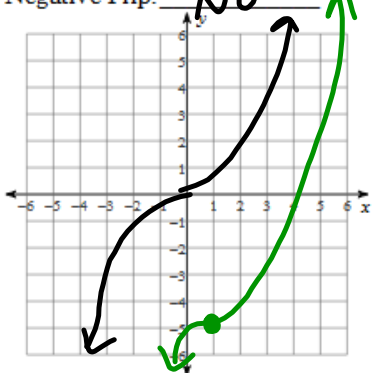
1) $f(x) = |x+1| - 3$

Family: abs. value
Vertical Shift: -3
Horizontal Shift: -1
Negative Flip: No



2) $f(x) = (x-1)^3 - 5$

Family: cubic
Vertical Shift: -5
Horizontal Shift: +1
Negative Flip: No



Use the equation to answer the questions about the shift of the function.

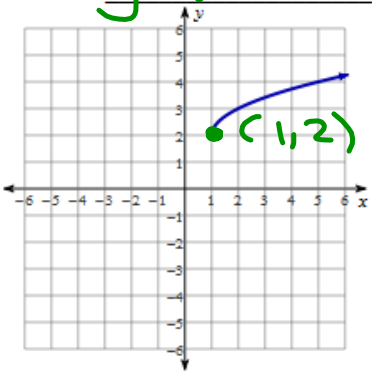
3) $p(x) = -(x+2)^2 - 5$

Family: Quadratic
Vertical Shift: -5
Horizontal Shift: -2
Negative Flip: yes

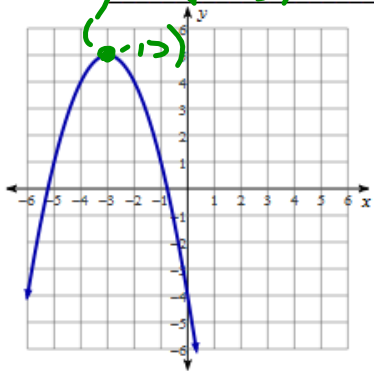
4) $p(x) = -\frac{1}{x-3} + 5$

Family: Rational
Vertical Shift: +5
Horizontal Shift: +3
Negative Flip: yes

5) Family: Radical $\sqrt{x}$
Vertical Shift: +2
Horizontal Shift: +1
Negative Flip: —
Function: $y = \sqrt{x-1} + 2$



6) Family: Quadratic x^2
Vertical Shift: +5
Horizontal Shift: -3
Negative Flip: yes
Function: $y = -(x+3)^2 + 5$



-1-

Unit 11: Function Operations

Lesson #	Name	Recap	HW
11.1	Families of Functions		HW 11.1
11.2	Domain and Range of Functions		HW 11.2
11.3	Shifting Functions	all families function vs. Relation D + R Shifting	Finish 11.3 QUIZ FRIDAY