

AFM Day 4 Notes – Piecewise Functions

Name: Key

Part I. Identify whether or not the graph is a function. Then, evaluate the graph at any specified domain value. You may use your calculators to help you graph, but you must sketch it carefully on the grid!

1.  $f(x) = \begin{cases} x+5 & x < -2 \\ x^2 + 2x + 3 & x \geq -2 \end{cases}$

$(-2)^2 + 2(-2) + 3$

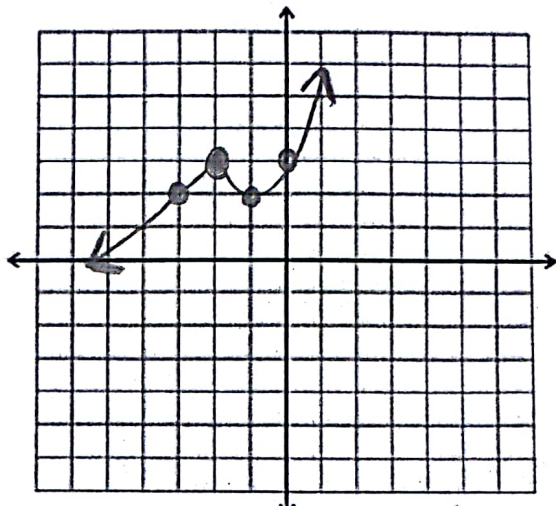
Function? Yes or No

$f(3) = 18$

$f(-4) = 1$

$f(-2) = 3$

x	y
-1	2
0	3



2.  $f(x) = \begin{cases} 2x+1 & x \geq 1 \\ x^2+3 & x < 1 \end{cases}$

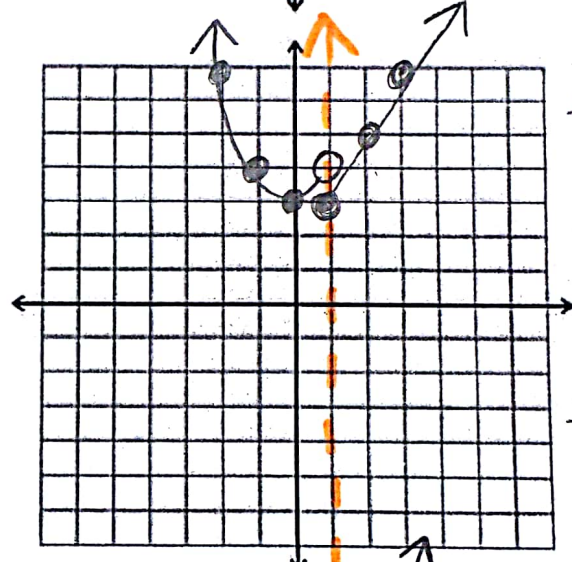
$x \geq 1$  closed  
 $x < 1$  open

Function? Yes or No

$f(-2) = (-2)^2 + 3 = 7$

$f(6) = 2(6) + 1 = 13$

$f(1) = 3$



x	y
1	3
2	5
3	7

x	y
1	4
0	3
-1	4

3.  $f(x) = \begin{cases} -2x+1 & x \leq 2 \\ 5x-4 & x > 2 \end{cases}$

x	y
2	-3
1	-1
0	1

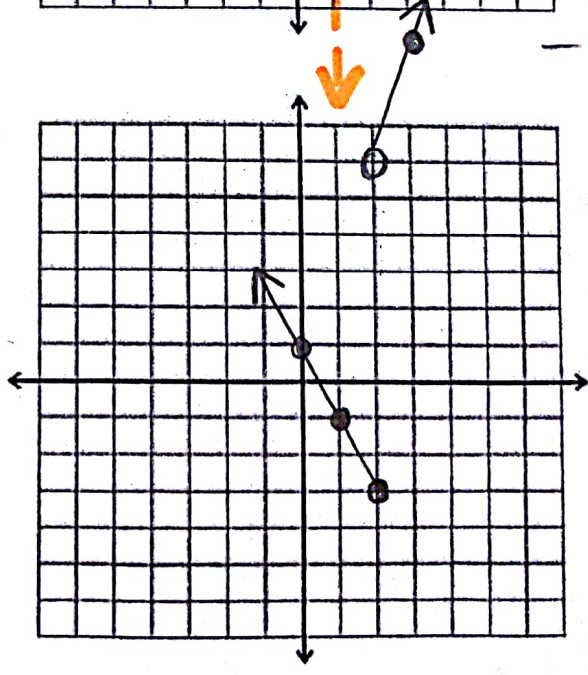
x	y
2	6
3	11

Function? Yes or No

$f(-4) = 9$

$f(8) = 36$

$f(2) = -3$



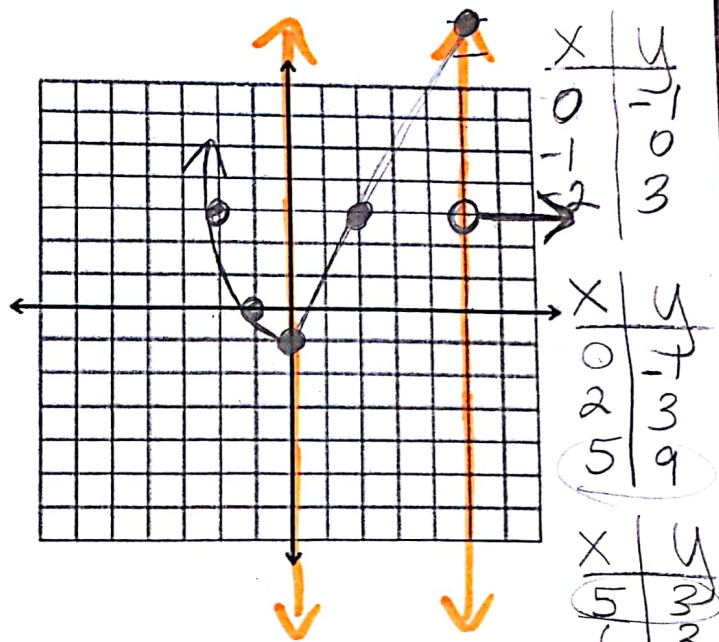
$$4. f(x) = \begin{cases} x^2 - 1 & x \leq 0 \\ 2x - 1 & 0 < x \leq 5 \\ 3 & x > 5 \end{cases}$$

Function? Yes or No

$$f(-2) = 3 \quad (-2)^2 - 1$$

$$f(0) = -1$$

$$\underline{\underline{f(5) = 9}}$$



x	y
0	-1
-1	0
-2	3

x	y
0	-1
2	3
5	9

x	y
5	3
6	3
7	3

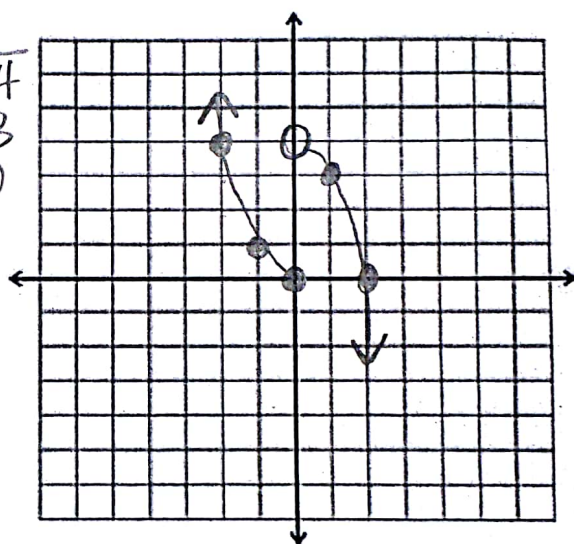
$$5. f(x) = \begin{cases} x^2 & x \leq 0 \\ -x^2 + 4 & x > 0 \end{cases}$$

Function? Yes or No

$$f(-4) = 16$$

$$f(0) = 0$$

$$f(3) = -5$$



x	y
0	0
-1	1
-2	4

x	y
0	-4
1	3
2	0

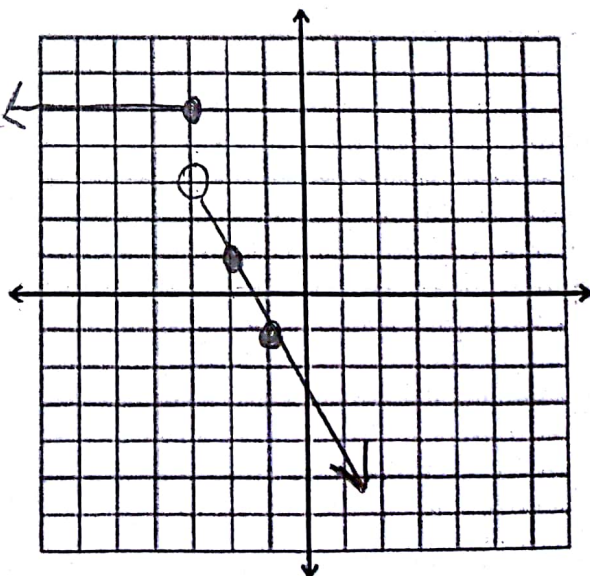
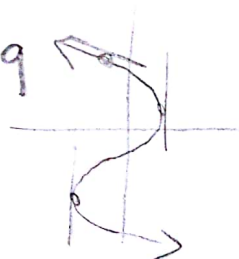
$$6. f(x) = \begin{cases} 5 & x \leq -3 \\ -2x - 3 & x > -3 \end{cases}$$

Function? Yes or No

$$f(-4) = 5$$

$$f(0) = -3$$

$$f(3) = -9$$



x	y
-3	5

x	y
-3	3
-2	1
-1	-1