

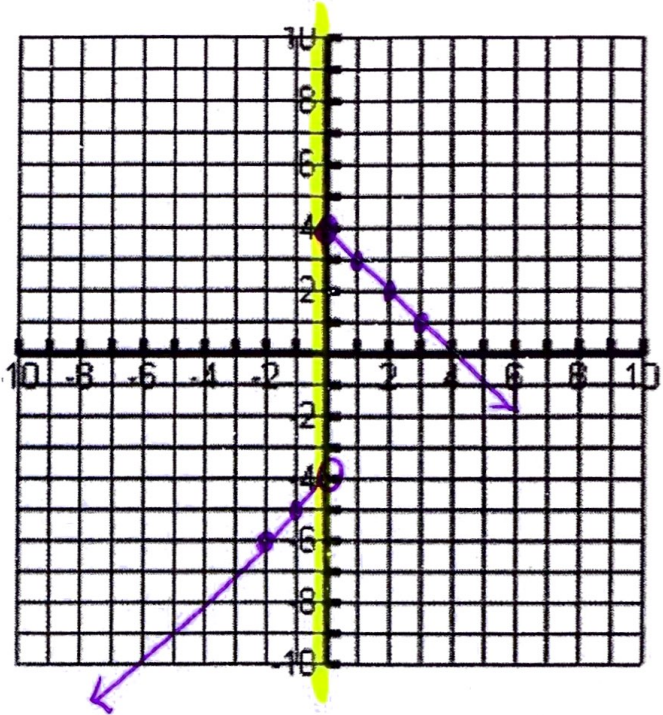
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Example 1

Graph the following Piecewise Function. Make sure you restrict your domain for certain "pieces" of the function.

$$f(x) = \begin{cases} x-4, & x < 0 \text{ Left} \\ -x+4, & x \geq 0 \text{ Right} \end{cases}$$

	x	y	
$x-4$	-2	-6	Continues to left
	-1	-5	
	0	-4	
	0	4	Continues to right
$-x+4$	1	3	
	2	2	



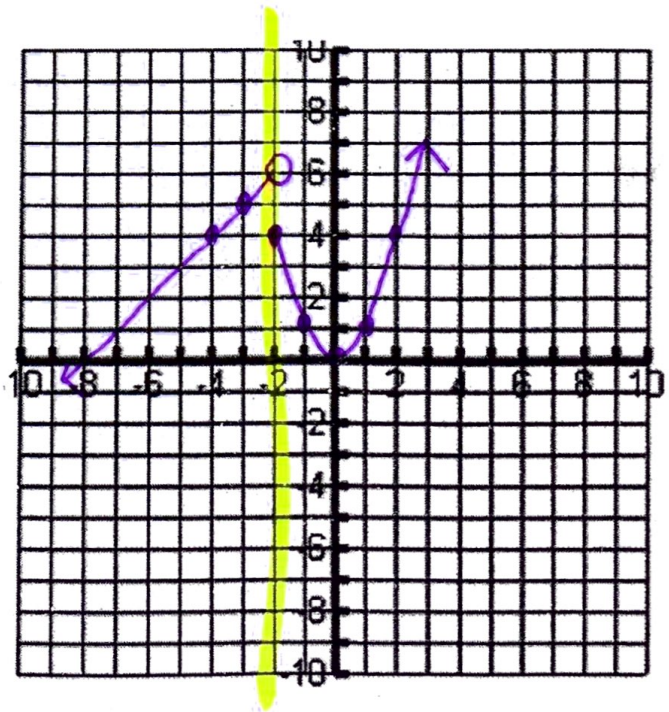
Example 2

Graph the following Piecewise Function. Make sure you restrict your domain for certain "pieces" of the function.

$$f(x) = \begin{cases} x^2, & x \geq -2 \text{ Right} \\ x+8, & x < -2 \text{ Left} \end{cases}$$

	x	y	
x^2	1	1	continues to R
	0	0	
	-1	1	
	-2	4	
$x+8$	-2	6	continues to L
	-3	5	
	-4	4	

Switch table



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Carefully graph each of the following. Then, evaluate the graph at any specified domain value.

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

$f(3) = 9 + 6 + 3 = 18$

$f(-4) = 1$

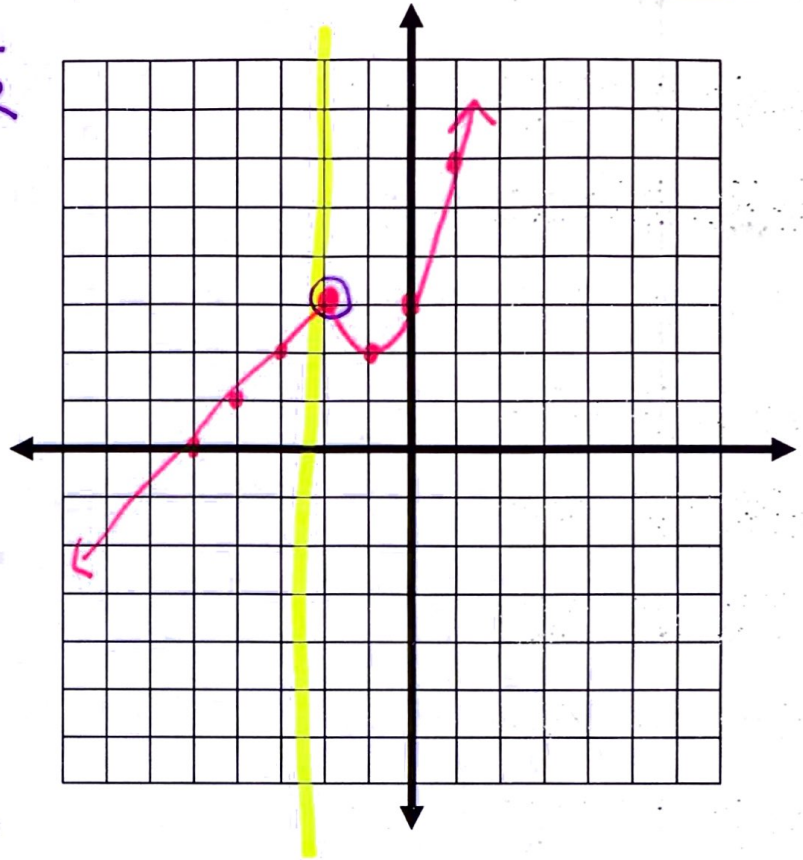
$f(-2) = 4 - 4 + 3 = 3$

x	y
-4	1
-3	2
-2	3
-2	3

$x+5$ cont. to left.

x	y
-1	3
0	3
1	6

cont. to right



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

$f(-2) = 7$

$f(6) = 13$

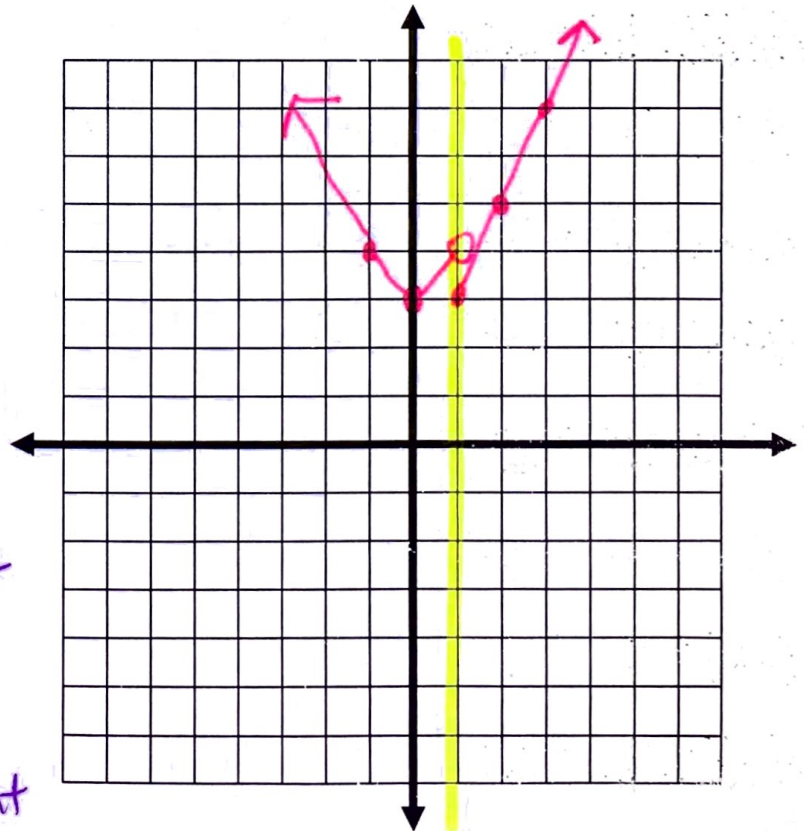
$f(1) = 3$

x	y
-2	7
-1	4
0	3
1	4

x^2+3 cont. to left

x	y
1	3
2	5
3	7
4	9

cont. to right



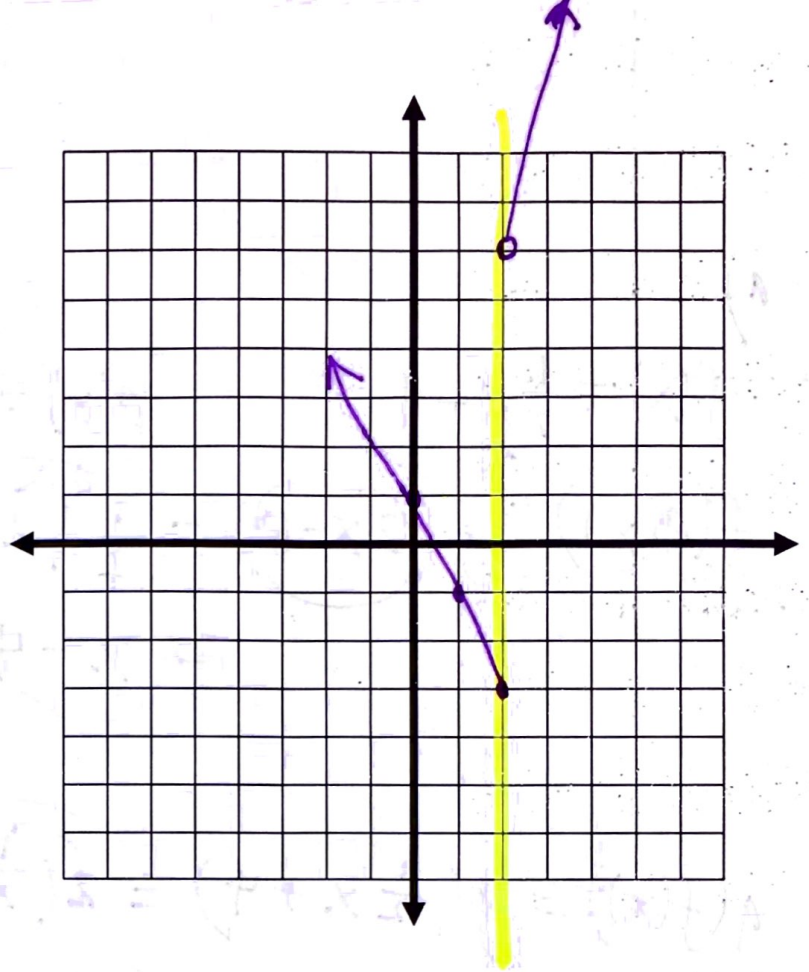
3. $f(x) = \begin{cases} -2x+1 & x \leq 2 \text{ L} \\ 5x-4 & x > 2 \text{ R} \end{cases}$

$f(-4) = -2(-4)+1 = 9$

$f(8) = 5(8)-4 = 36$

$f(2) = -2(2)+1 = -3$

-2x+1	x	y	
	-1	3	
	0	1	
	1	-1	
	2	-3	•
5x-4	2	6	o
	3	11	
	4	16	



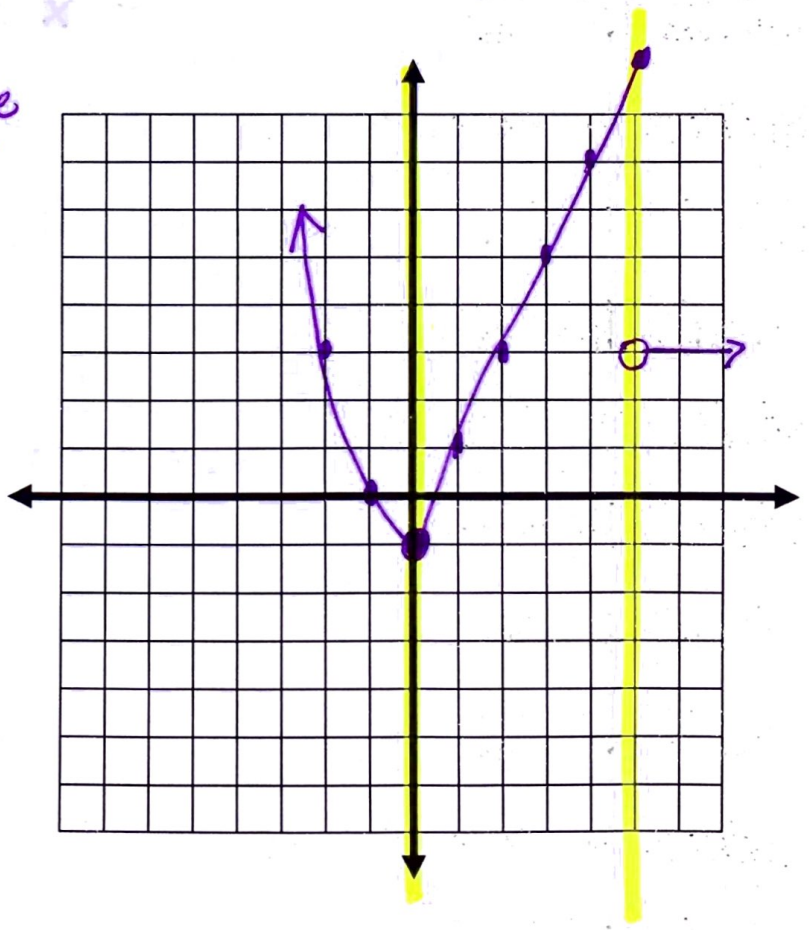
4. $f(x) = \begin{cases} x^2 - 1 & x \leq 0 \text{ left} \\ 2x - 1 & 0 < x \leq 5 \text{ middle} \\ 3 & x > 5 \text{ right} \end{cases}$

$f(-2) = (-2)^2 - 1 = 4 - 1 = 3$

$f(0) = 0^2 - 1 = -1$

$f(5) = 2(5) - 1 = 10 - 1 = 9$

$x^2 - 1$	L	x	y	
		-2	3	
		-1		
		0	-1	•
$2x - 1$	M	0	0	o
		1	1	
		3	5	
		5	9	•
3	R	5	3	o
		6	3	
		7	3	



5.

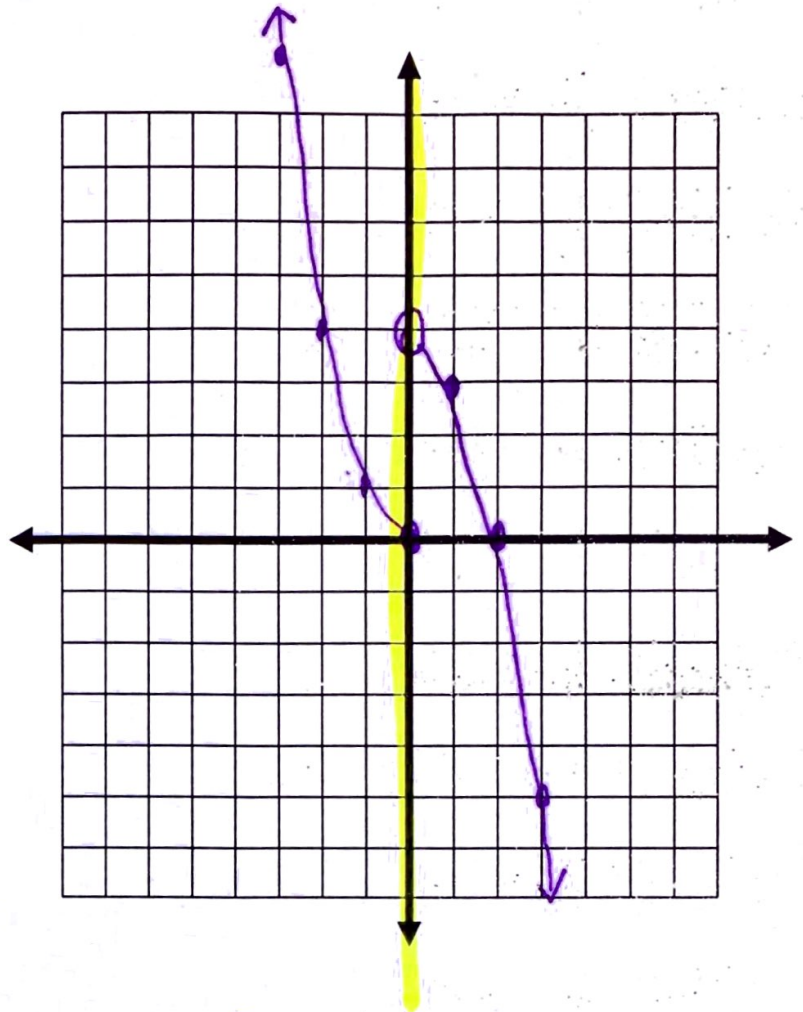
$$f(x) = \begin{cases} x^2 & x \leq 0 \\ -x^2 + 4 & x > 0 \end{cases}$$

$$f(-4) = 16$$

$$f(0) = 0$$

$$f(3) = -5$$

x	y
-3	9
-2	4
-1	1
0	0
0	4
1	3
2	0
3	-5



6.

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

$$f(-4) = 5$$

$$f(0) = -3$$

$$f(3) = -9$$

x	y
-6	5
-5	5
-4	5
-3	5
-3	3
-2	1
-1	-1
0	-3
1	-5
3	-9

