

2.1 GRAPHING ABSOLUTE VALUE FUNCTIONS

OBJECTIVES:

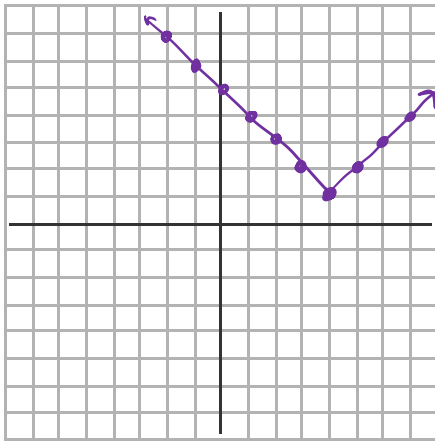
- 1) Graph an absolute value function using a table of values.
- 2) Graph an absolute value function within a restricted domain.
- 3) Identify the domain and range of an absolute value function.

GRAPHING AN ABSOLUTE VALUE FUNCTION

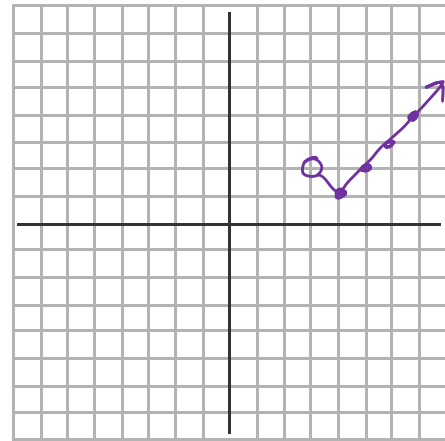
Example 1:

a) $y = |x - 4| + 1$ {Reals}

b) Now graph within a restricted domain: $\{x > 3\}$



x	y
-2	7
-1	6
4	1
5	2



x	y
3	2
4	1
5	2

Range: $y \geq 1$

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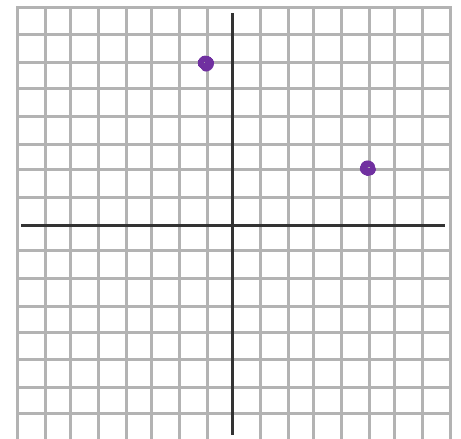
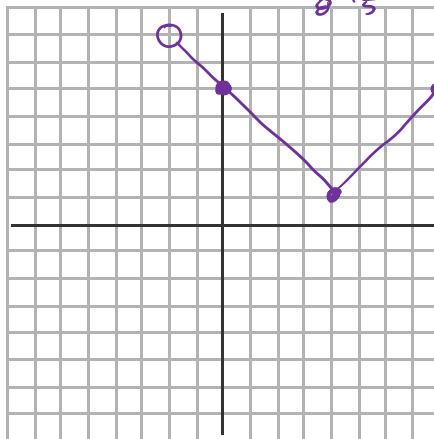
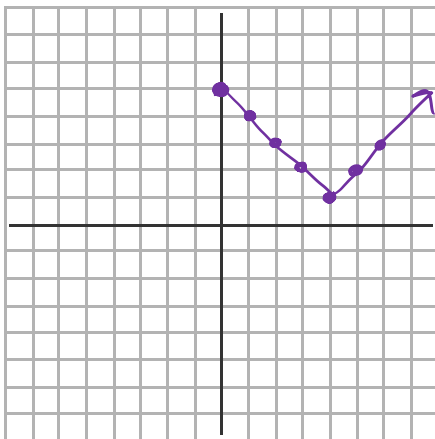
c) D: {non-negative reals}
 $y = |x - 4| + 1$

d) D: $\{-2 < x \leq 8\}$

x	y
-2	7
0	5
4	1
5	2

e) D: $\{-4, -1, 5\}$
 $(-4, 9)$

x	y
-4	9
-1	6
5	2



Range: $y \geq 1$

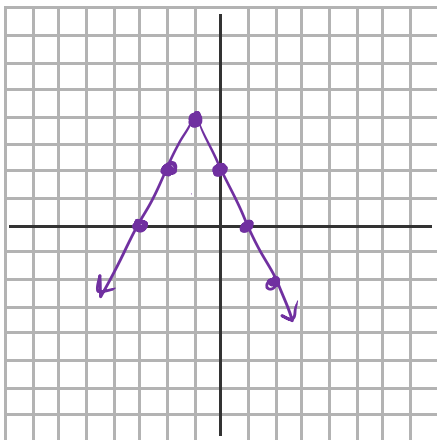
Range: $1 \leq y < 7$

Range: $\{2, 6, 9\}$

GRAPHING AN ABSOLUTE VALUE FUNCTION

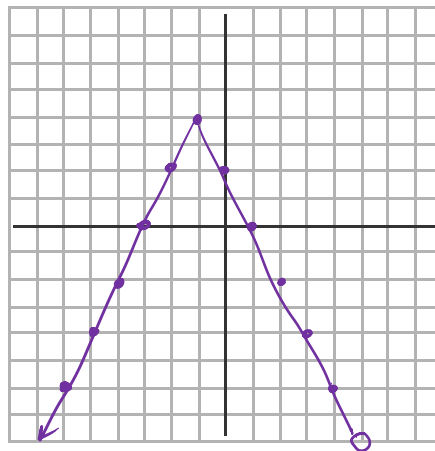
Example 2:

a) $y = -2|x+1| + 4$



x	y
-2	2
-1	4
0	2
1	0
2	-2

b) D: $\{x < 5\}$



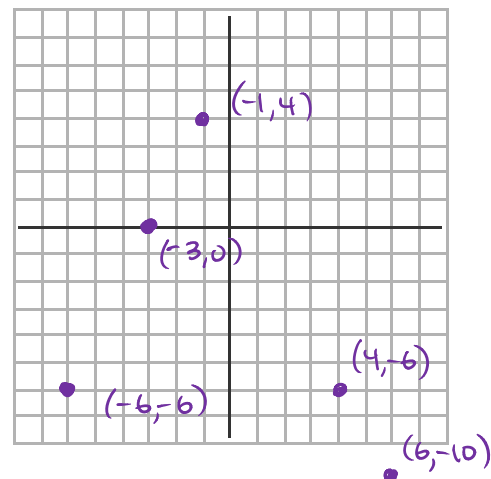
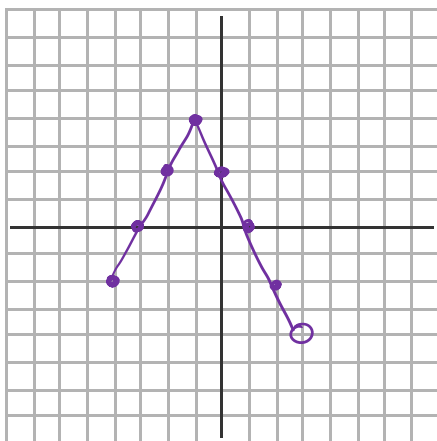
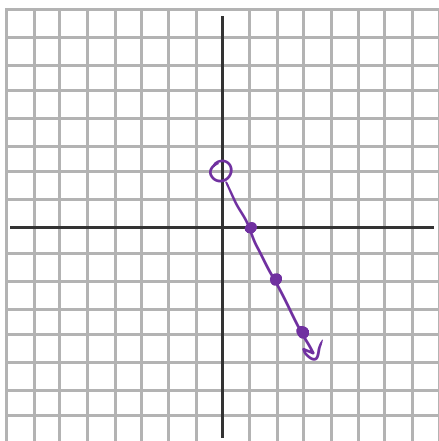
Range: $y \leq 4$

Range: $y \leq 4$

c) D: $\{\text{positive reals}\}$

d) D: $\{-4 \leq x < 3\}$

e) D: $\{-6, -3, -1, 4, 6\}$



Range: $y < 2$

Range: $-4 < y \leq 4$

Range: $\{-10, -6, 0, 4\}$