

NOTES: KEY FEATURES (ABS VAL FUNCTIONS)

DAY 2

Textbook Chapter 2.7

OBJECTIVE: Today you will look at key features of absolute value graphs such as domain and range, max/min, increasing/decreasing, intercepts, and end behavior.

Fill out the chart.

	EQUATION	OPEN	VERTEX (initial point)	SHIFT (horizontal/vertical)	VERTICAL CHANGE
1	$y = x - 3 + 5$	Up Down	(,)	Left Right _____ Up Down _____	Stretch Shrink None
2	$y = 2 x + 1 - 3$	Up Down	(,)	Left Right _____ Up Down _____	Stretch Shrink None
3	$y = - x - 6 $	Up Down	(,)	Left Right _____ Up Down _____	Stretch Shrink None
4	$y = \frac{3}{4} x - 1 $	Up Down	(,)	Left Right _____ Up Down _____	Stretch Shrink None
5	$y = - x + 10$	Up Down	(,)	Left Right _____ Up Down _____	Stretch Shrink None

6. Create an absolute value function that:

- Opens down
- Is vertically stretched
- Is shifted left 5
- Is shifted down 1

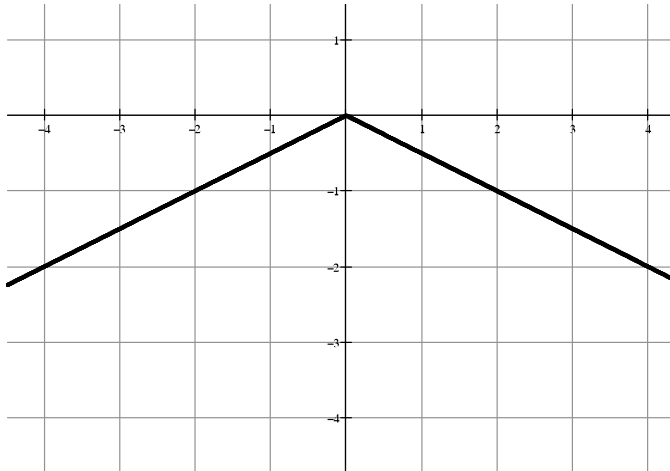
Y = _____

7. What is the domain of every absolute value function? Why?

8. How can you look at an equation of any absolute value function and find the range?

9. Fill in the blanks about the graph

End Behavior:



As $x \rightarrow +\infty$ then $f(x) \rightarrow$ _____

As $x \rightarrow -\infty$ then $f(x) \rightarrow$ _____

Domain: _____

Increasing: _____

Range: _____

Decreasing: _____

Absolute Max: _____

Relative Max: _____

Absolute Min: _____

Relative Min: _____

10. Circle all graphs that have a range of: $[1, \infty)$. There could be more than one answer.

$$y = |x+1|$$

$$y = |x|+1$$

$$y = 2|x-1|$$

$$y = \frac{1}{3}|x|+1$$

11. Circle all the functions where the vertex is a maximum. There could be more than one answer.

$$y = -|x+5|$$

$$y = |x|-5$$

$$y = -2|x-3|$$

$$y = -100|x|$$

12. Circle all the graphs that have a turning point of $(2, 0)$.

$$y = -|x+2|+0$$

$$y = -|x-2|$$

$$y = \frac{1}{9}|x|-2$$