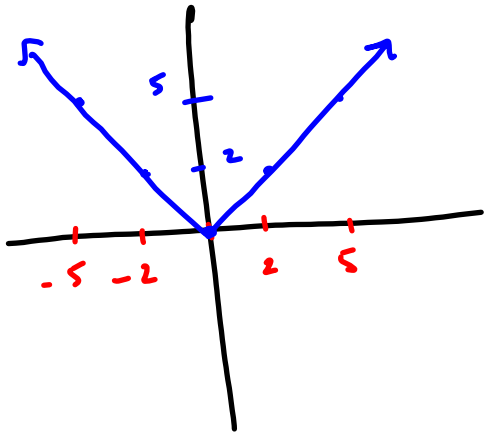
3.7 Graphing Absolute Value functions



$y = |x|$

Use a table of values to discover what the graph looks like ...

$y = |x|$

x	y
-5	5
-2	2
0	0
2	2
5	5

$y = |-5| = 5$

$y = |-2| = 2$

Now plot those points

$(-5,5)$ $(0,0)$ $(5,5)$

$(-2,2)$ $(2,2)$

$y = |x|$ is the "Parent" function for All Absolute value functions.

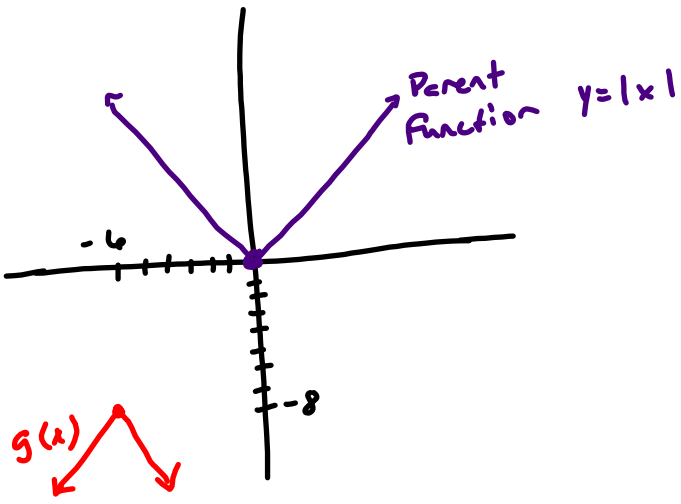
That means Every other Absolute value function is just a transformation of the parent. $y = |x|$.

General form for Absolute Value Func'ns

$$f(x) = a|x-h|+k$$

Ex: Compare the transformation $g(x) = -|x+6|-8$ to the parent function $y = |x|$

- Flip
- Left 6
- Down 8

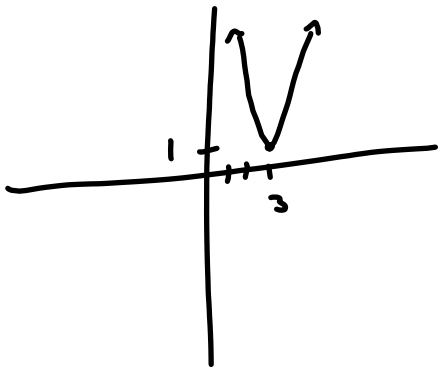


3.7 Absolute Value Functions and Graphs

Ex: $g(x) = 2|x-3|+1$

State transformations from parent function $(y=|x|)$

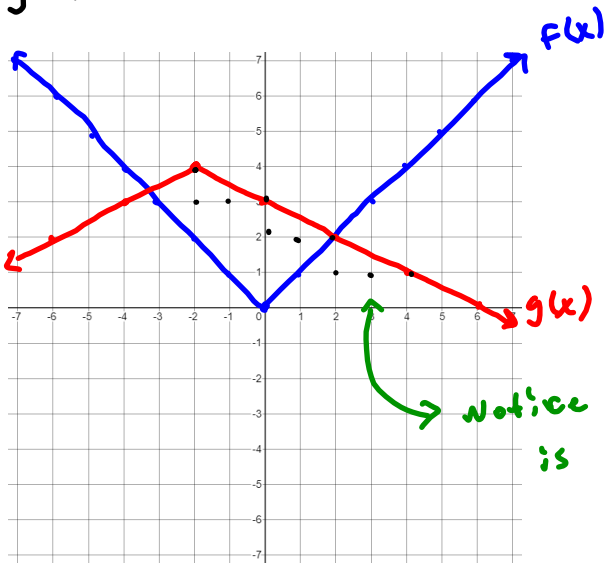
- Vertical Stretch by 2
- Right 3
- Up 1



Ex: give the function for the transformation of ... flipped, ↓7, →10 (for an absolute value)

$$g(x) = -|x - 10| - 7$$

Ex: given the graphs of $f(x)$ & $g(x)$.
State $g(x)$'s transformations.



g(x) : Red

f(x) : Blue

Flipped

↑4

← 2

V. Shrink by $\frac{1}{2}$

Notice our "slope" is $\frac{1}{2}$. Down 1, Right 2

Write the function: $g(x) = -\frac{1}{2}|x + 2| + 4$

HW: Pg 160-161

5-12 only stating transformations

23-26

33-37