

GRAPHING ABSOLUTE VALUE FUNCTIONS

Absolute value functions have the form

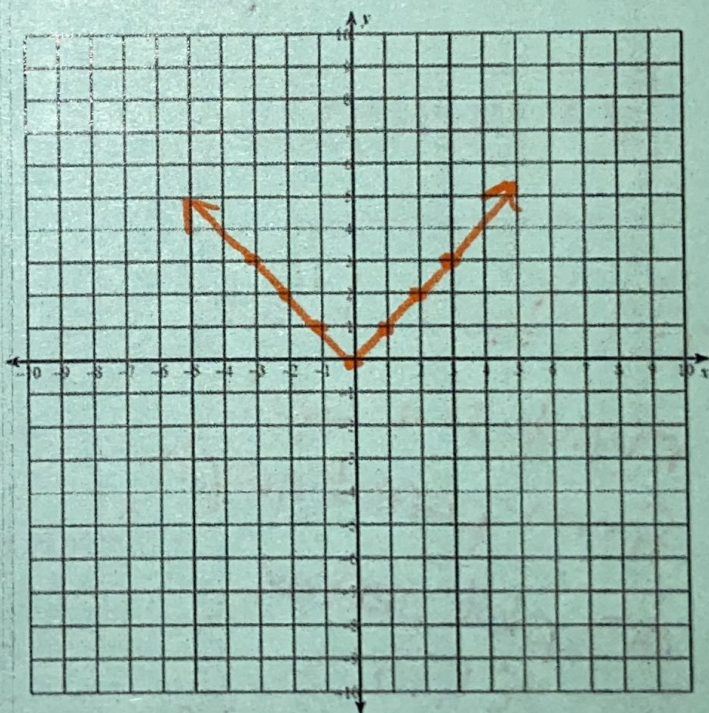
$$f(x) = a|x - h| + k$$

a, h and k have the same effects on the graphs as they have in other graphs that we have explored.

V-shaped graphs!

Graph $y = |x|$.

x	y
3	3
2	2
1	1
0	0
-1	1
-2	2
-3	3

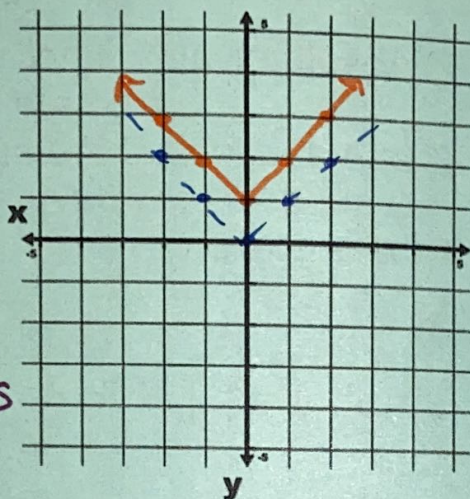


$$y = |x| + 1$$

5 points!

$a=1$ $h=0$ $K=1$
shift parent graph
up 1

or plot vertex
 (h, K) & treat
a like slope in
both directions
 $\frac{\text{rise}}{\text{run}}$

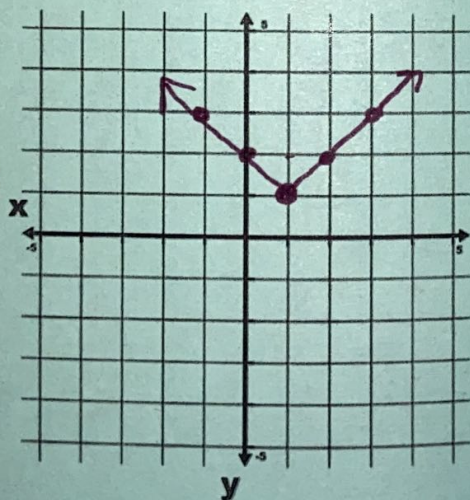


$$y = |x-1| + 1$$

$a=1$ $h=1$ $K=1$
right 1 + up 1
from parent graph

or plot vertex
 $(1, 1)$

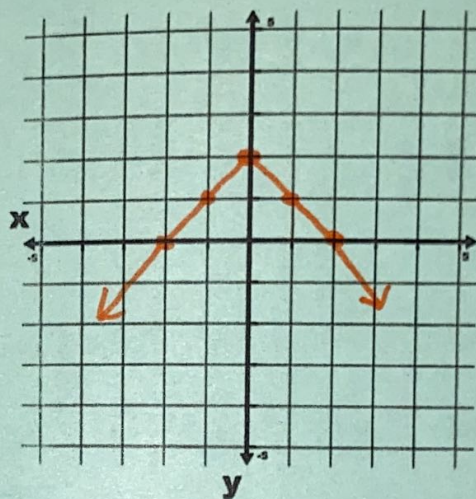
$a=1$ so $\frac{1}{1}$ rise
to the right
+ left



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

$a=-1$ $h=0$ $K=2$
up

$(0, 2)$ vertex
mor $a = -\frac{1}{1}$ down



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

$a=2$ $h=3$ $K=0$
vertical stretch
right 3

vertex $(3, 0)$

$a=2$ so $\frac{2}{1}$ rise
right + left

