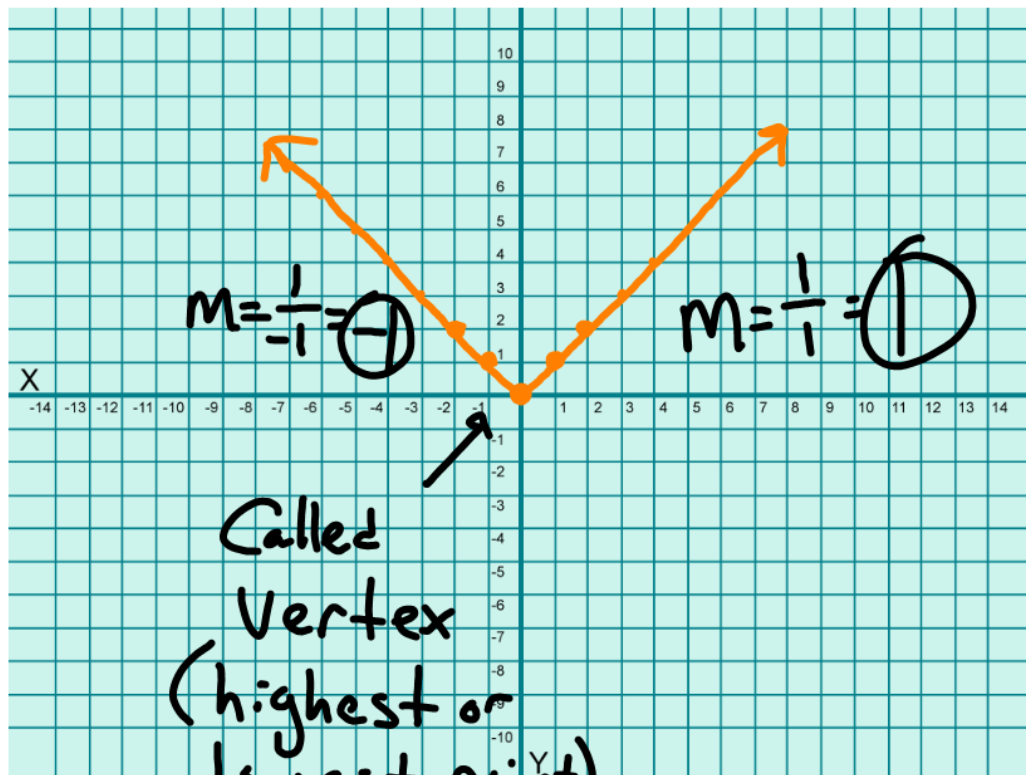


2.7 Absolute Value Function

! Transformations!



Symmetry with y-axis

$$f(x) = |x|$$

$$y = |x|$$

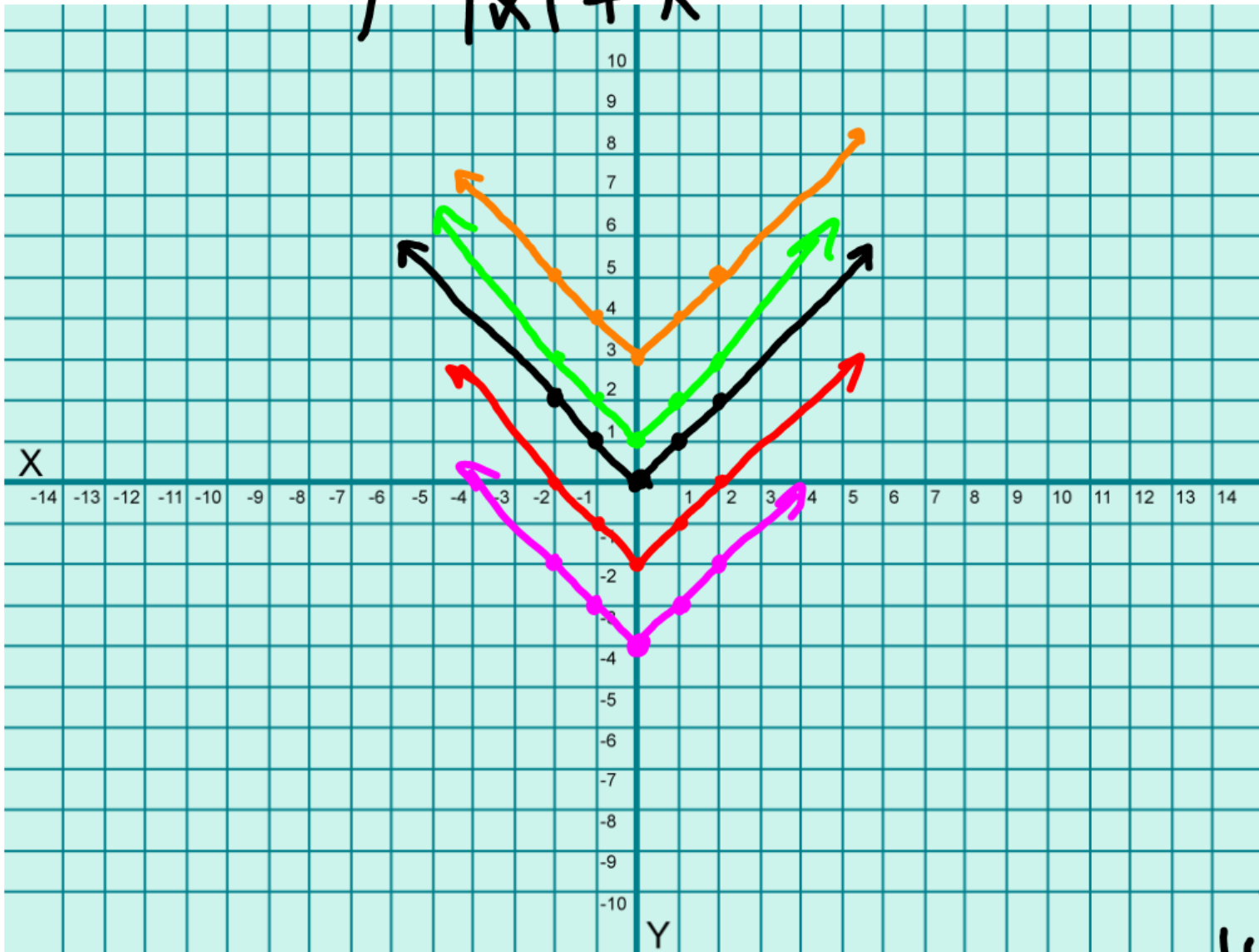
or

$$y = |x - h| + k$$

for $y = |x|$

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

$$y = |x| + k$$



$$y = |x| + 3$$

$$y = |x| + 1$$

$$y = |x|$$

$$y = |x| - 2$$

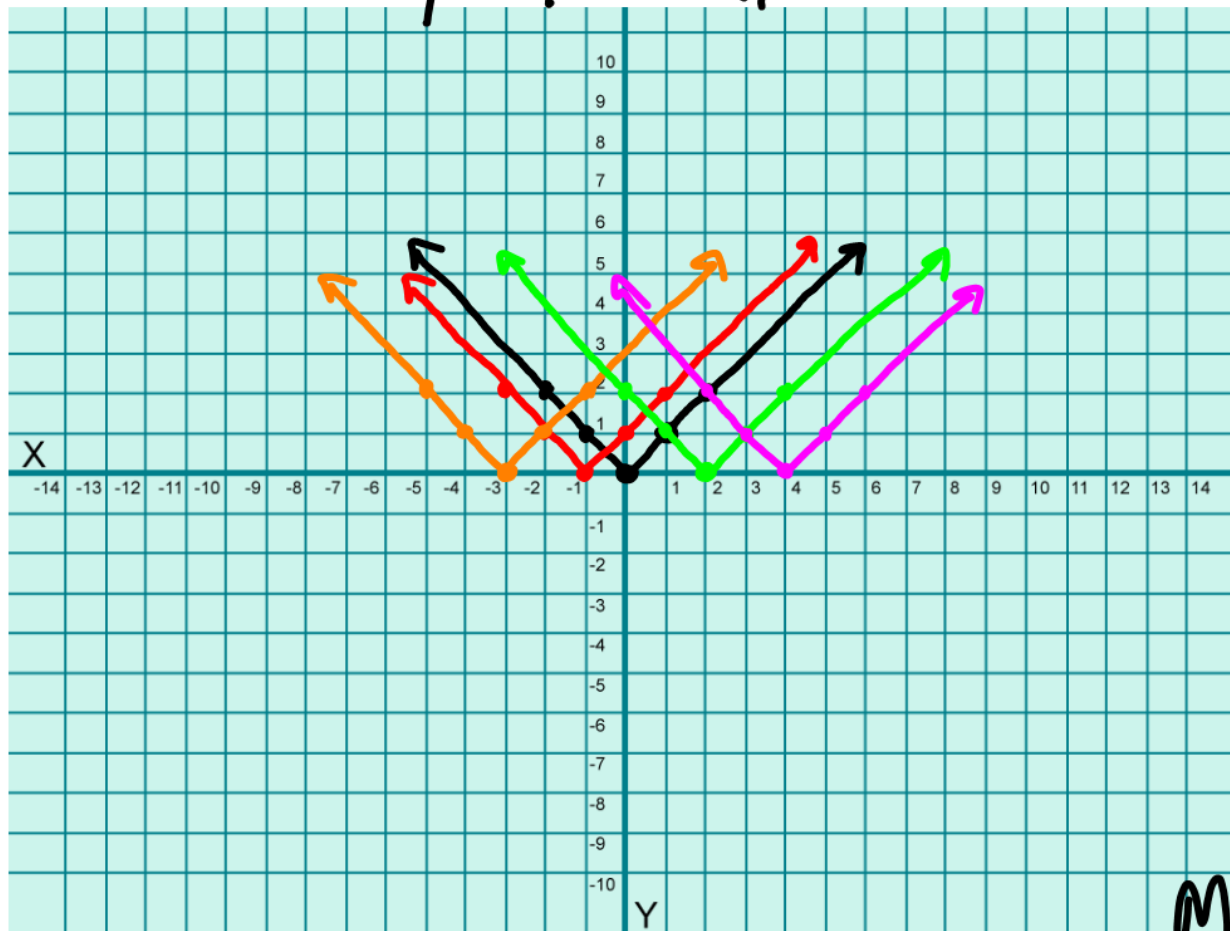
$$y = |x| - 4$$

Moves
Vertically
by k units

$$y = |x| - 53$$

↖ down 53

$$y = |x - h|$$



$$y = |x + 3|$$

$$y = |x + 1|$$

$$y = |x|$$

$$y = |x - 2|$$

$$y = |x - 4|$$

Moves the
vertex

horizontally
the opposite
of h

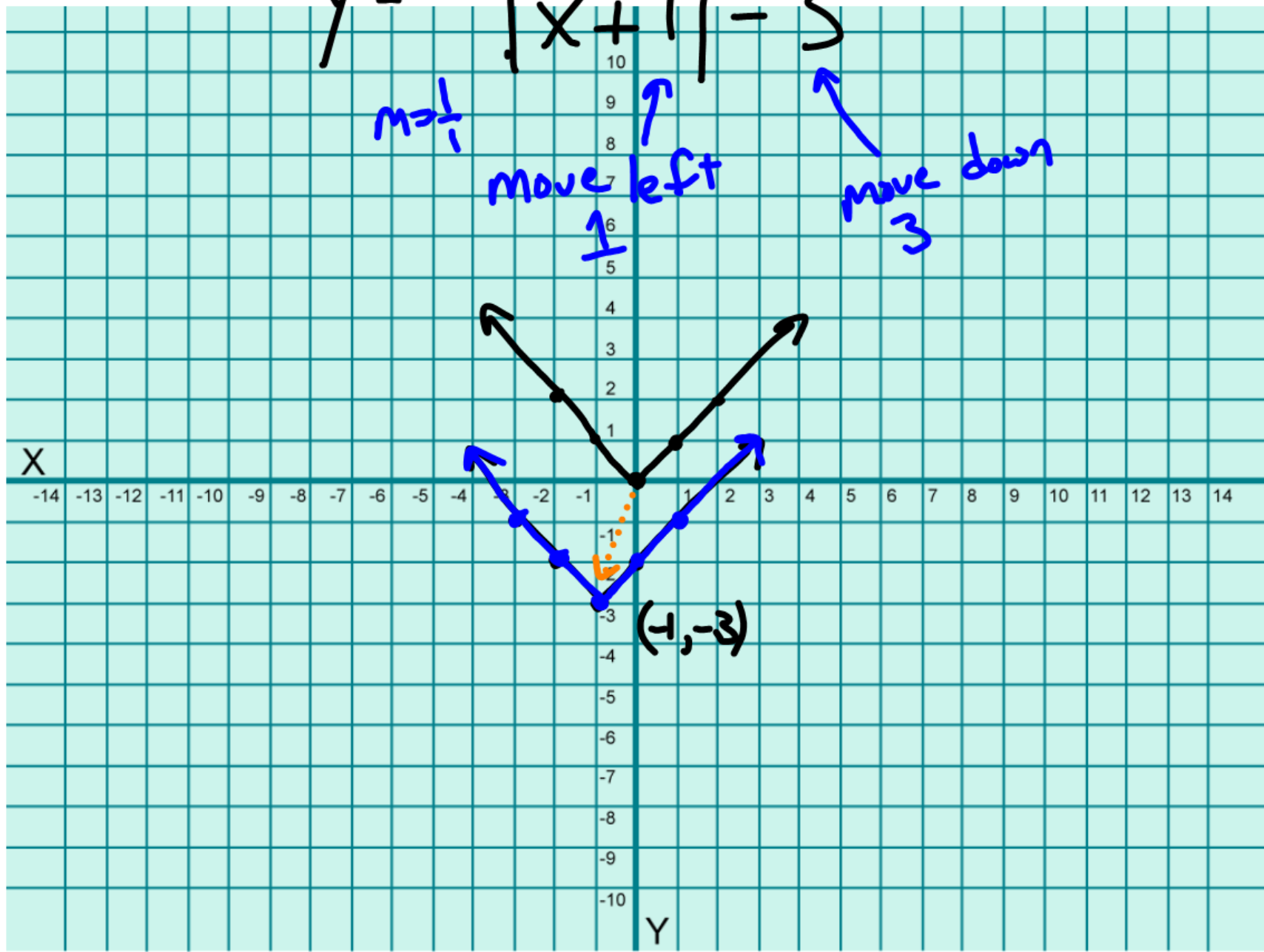
$$y = |x + 1| - 3$$

$m = \frac{1}{2}$

move left

1

move down
3



$(-1, -3)$

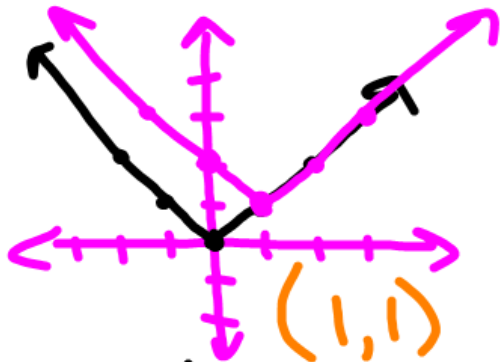
Homework:

$$y = |x|$$

Name vertex & Sketch

right + 1 up 1

$$\textcircled{1} y = |x - 1| + 1$$



Name vertex

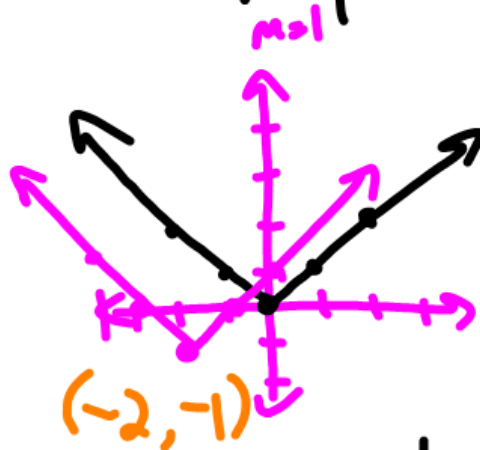
$$\textcircled{4} y = |x - 92| + 16$$

opp

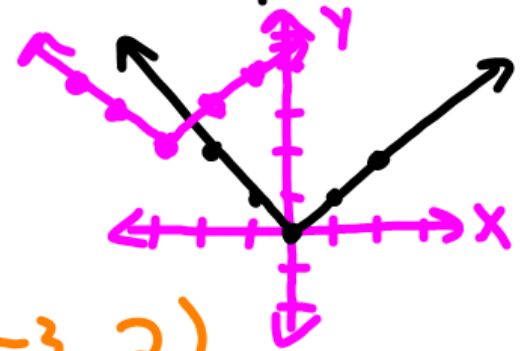
$$(92, 16)$$

left 2 down 1

$$\textcircled{2} y = |x + 2| - 1$$



$$\textcircled{3} y = |x + 3| + 2$$



$$(-3, 2)$$

$$\textcircled{5} y = |x + 1066| - 1945$$

$$(-1066, -1945)$$

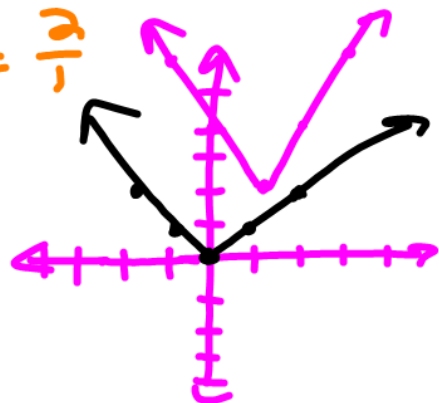
Warm-up

Graph i vertex

①

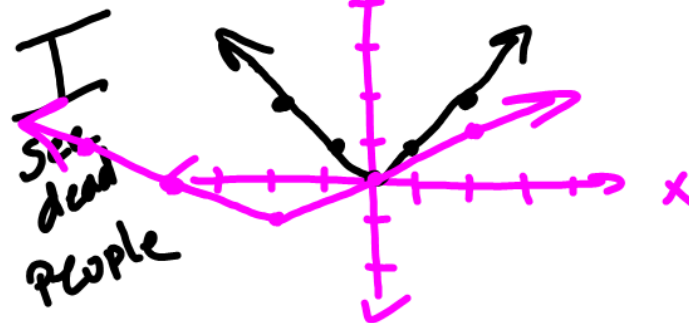
$$y = 2|x - 1| + 2$$

$$m = \frac{2}{1}$$



②

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



③

$$y = -3|x| + 3$$

$$m = \frac{-3}{1}$$

