

$$y_1 = |x|$$

$$|x-0|$$

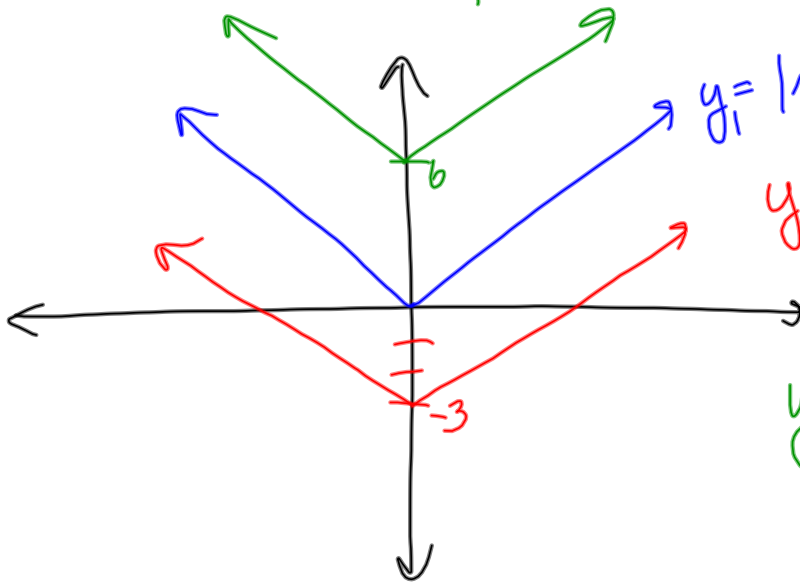
$$y_2 = |x-3|$$

The distance from a number to 3.

$$y_3 = |x+5|$$

$$|x-(-5)|$$

The distance from -5.



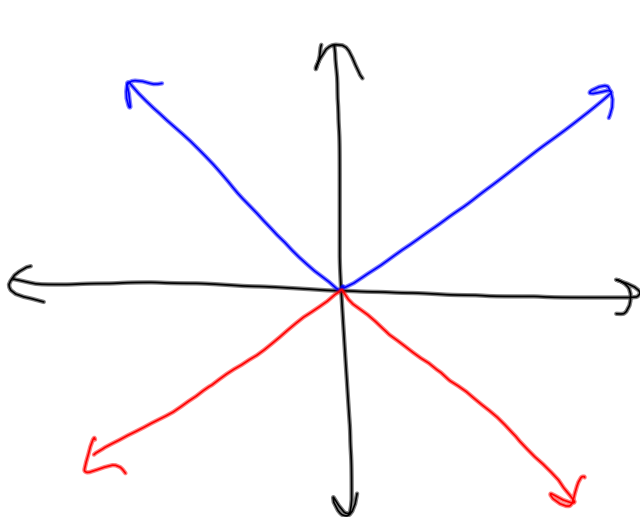
$$y_1 = |x|$$

$$y_2 = |x| - 3$$

down

$$y_3 = |x| + 6$$

up



$$y_1 = |x|$$

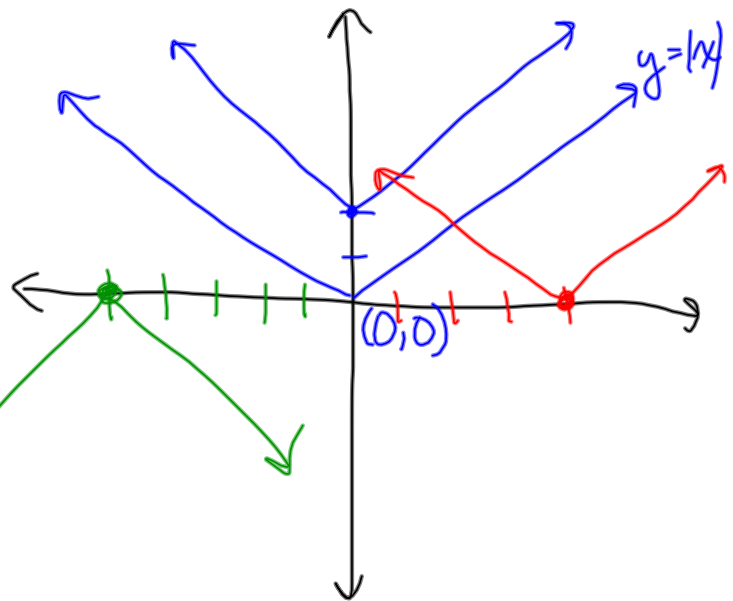
$y_2 = -|x|$
reflects graph across x-axis

Graph:

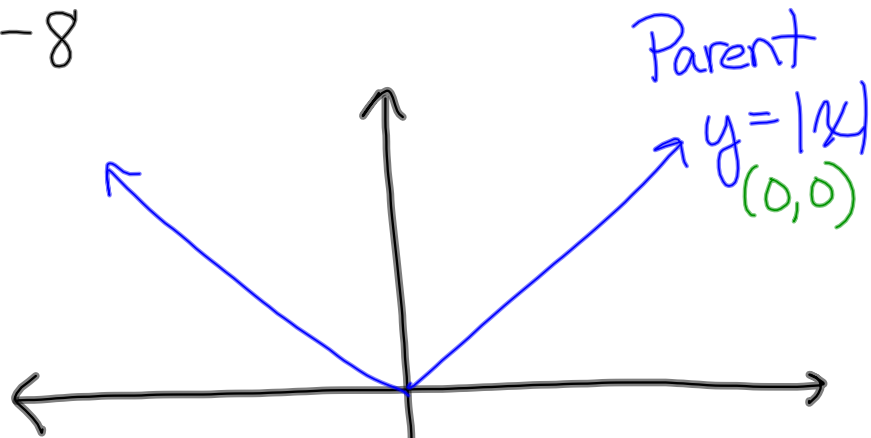
① $y = |x| + 2$
 $v: (0, 2)$

② $y = |x - 4|$
 $v: (4, 0)$

③ $y = -|x + 5|$
 ↓
 down $v: (-5, 0)$



Sec. 5-8



$y = |x + 2|$ left 2
 $(-2,0)$

$y = |x - 2|$ right 2
 $(2,0)$

$y = |x| + 2$ up 2
 $(0,2)$

$y = |x| - 2$ down 2
 $(0,-2)$

$y = -|x|$

reflects on x-axis
opens down

Ex:

$y = \ominus |x + 2| + 5$
open down
(reflect on x-axis)

left 2 up 5

$v: (-2, 5)$