

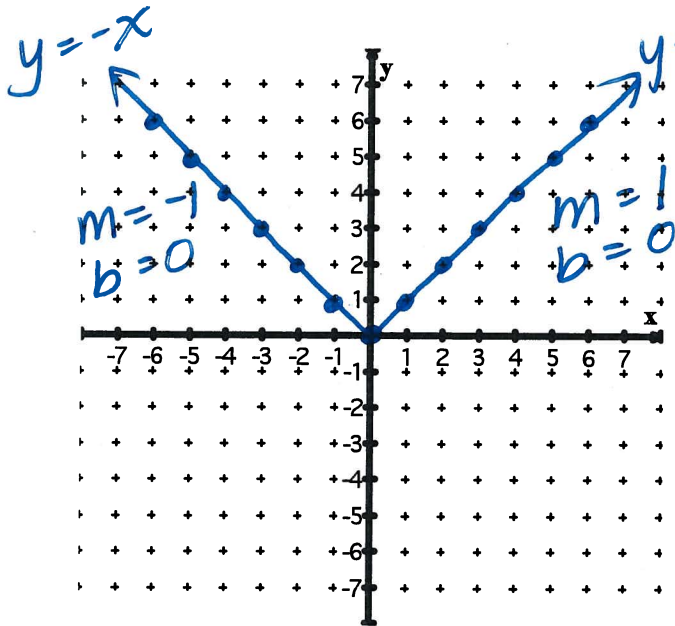
# PIECEWISE FUNCTIONS



NAME: \_\_\_\_\_

BLOCK: \_\_\_\_\_

1. Graph the Absolute Value Parent Function:  $y = |x|$



	EQUATION	DOMAIN
1	$y = 1x + 0$	$x \geq 0$
2	$y = -1x + 0$	$x < 0$

$$f(x) = \begin{cases} -x, & x \geq 0 \\ x, & x < 0 \end{cases}$$

2. Evaluate the piecewise function:

- |            |             |                          |                        |
|------------|-------------|--------------------------|------------------------|
| $3 \geq 0$ | a) $f(3)$   | Which equation: <u>1</u> | f(3) = <u>3</u>        |
| $3 < 0$    | b) $f(-10)$ | Which equation: <u>2</u> | $f(-10) = -(-10) = 10$ |
|            | c) $f(9)$   | Which equation: <u>1</u> | $f(9) = 9$             |
|            | d) $f(4)$   | Which equation: <u>1</u> | $f(4) = 4$             |
|            | e) $f(-1)$  | Which equation: <u>2</u> | $f(-1) = 1$            |
|            | f) $f(100)$ | Which equation: <u>1</u> | $f(100) = 100$         |
|            | g) $f(-7)$  | Which equation: <u>2</u> | $f(-7) = 7$            |
|            | h) $f(0)$   | Which equation: <u>1</u> | $f(0) = 0$             |

# INSTRUCTIONS ON GRAPHING PIECEWISE FUNCTIONS!

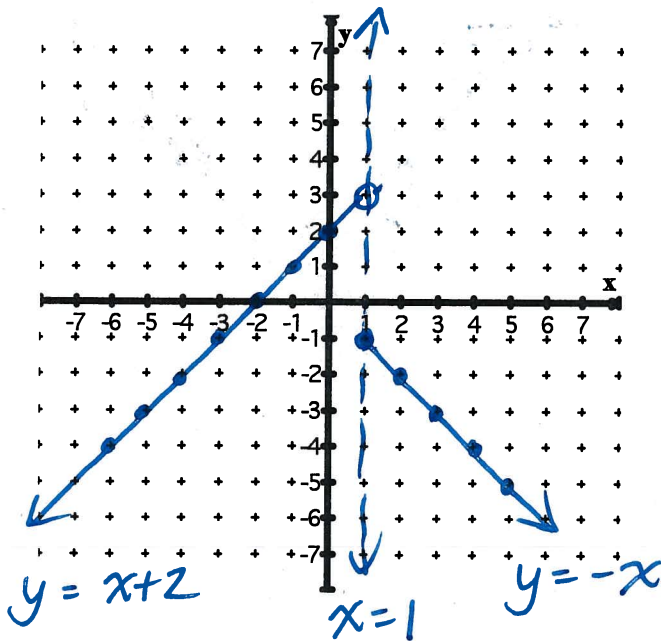
- a. Graph the boundary line.
- b. Graph equation 1 (only over the correct domain).
- c. Graph equation 2 (only over the correct domain).
- d. Check that: The graph is a function!  
There is an open circle where it should be!

3. This is an example of a piecewise function:

$$f(x) = \begin{cases} x + 2; & x < 1 \\ -x; & x \geq 1 \end{cases}$$

1	$y = x + 2$	$x < 1$
2	$y = -x$	$x \geq 1$

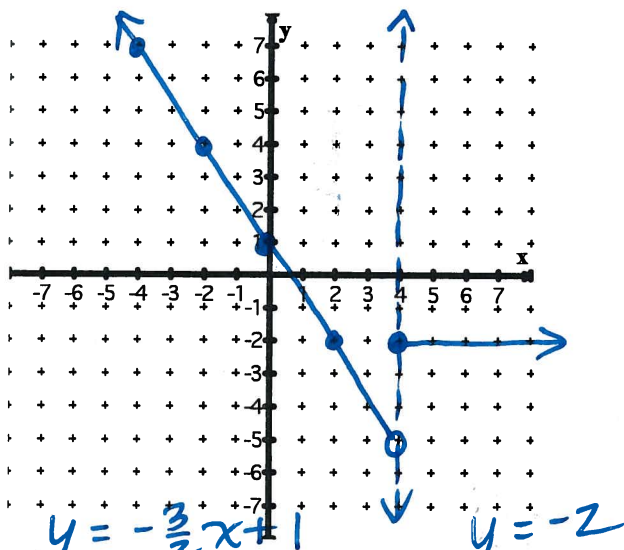
$x = 1$



**YOU TRY** → Graph the piecewise functions

1.  $h(x) = \begin{cases} -\frac{3}{2}x + 1; & x < 4 \\ -2; & x \geq 4 \end{cases}$

$x = 4$



2.  $g(x) = \begin{cases} 2x + 5; & x \geq -3 \\ \frac{1}{3}x + 4; & x < -3 \end{cases}$

$x = -3$

