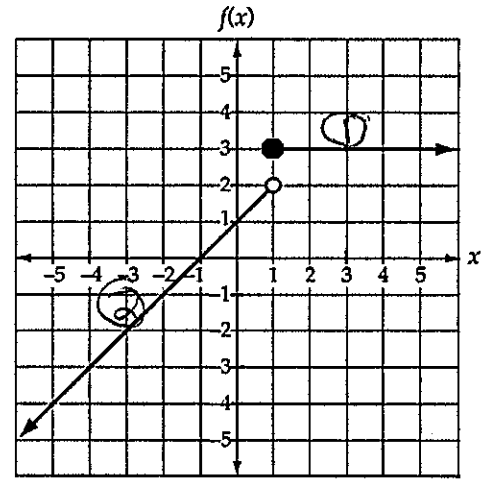Do Now: The piecewise linear function f(x) is graphed in the given diagram.



(a) Write the equation of each line (piece) in y = mx + b form:

① $y = 3$

② $y = -x + 1$
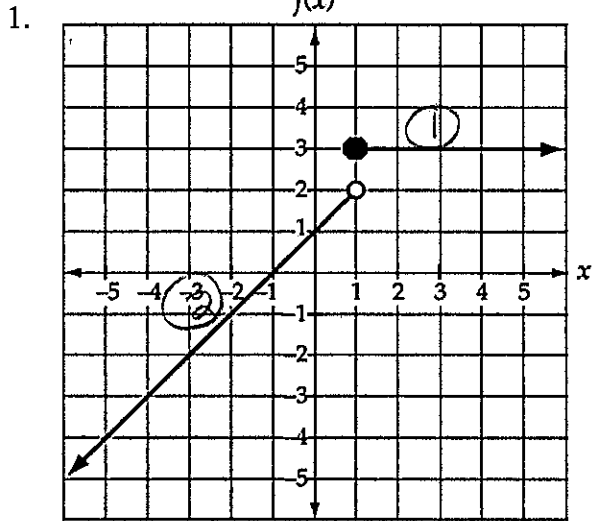
(b) Write the domain of each line (piece).
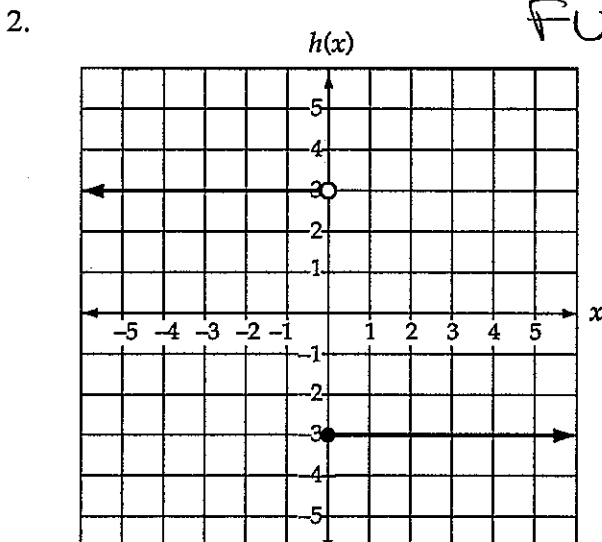
① $\{x \mid x \geq 1\}$

② $\{x \mid x < 1\}$

**AIM: How Do We Graph Piecewise Functions? (Day 2)**
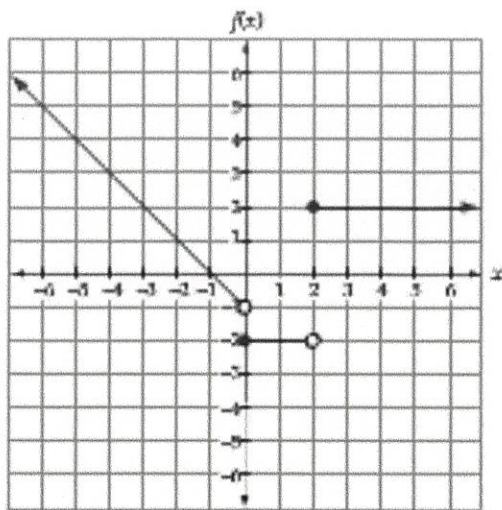
Write the equation for each graph below.

1.



function? Yes

$$f(x) = \begin{cases} 3, & \text{if } x \geq 1 \\ -x+1, & \text{if } x < 1 \end{cases}$$
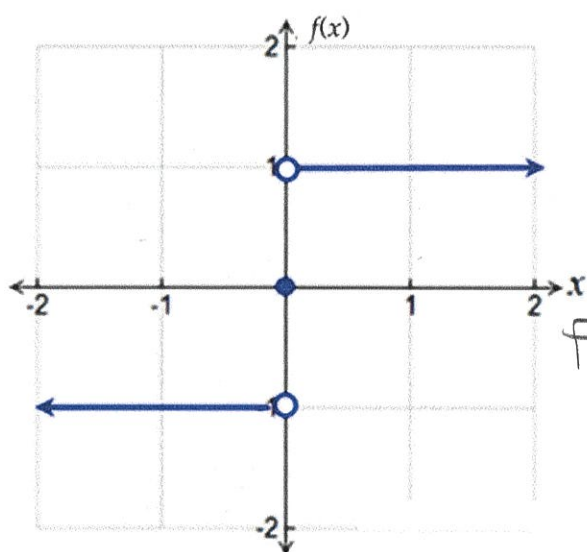
2.



function? Yes

$$f(x) = \begin{cases} 3, & \text{if } x < 0 \\ -3, & \text{if } x \geq 0 \end{cases}$$

**3.**



$$f(x) = \begin{cases} 2, & \text{if } x \geq 2 \\ -x+1, & \text{if } x < 1 \\ -1, & \text{if } 0 \leq x < 2 \end{cases}$$
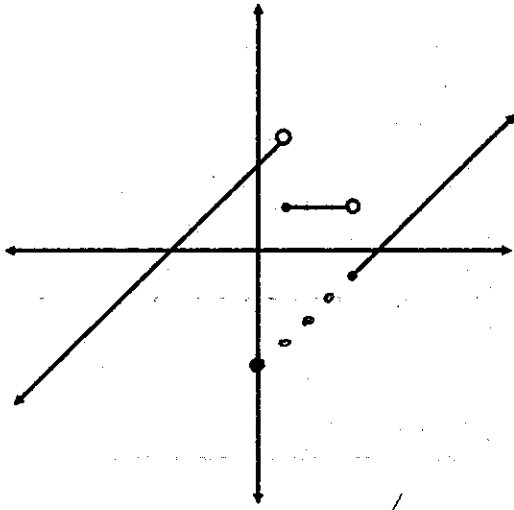
**4.**



$$f(x) = \begin{cases} 1, & \text{if } x > 0 \\ 0, & \text{if } x = 0 \\ -1, & \text{if } x < 0 \end{cases}$$

**5.**



$$f(x) = \begin{cases} 4, & \text{if } -4 \leq x \leq -2 \\ 2, & \text{if } -2 < x < 2 \\ -3, & \text{if } 2 \leq x \leq 4 \end{cases}$$

6.



$$F(x) = \begin{cases} x+4, & \text{if } x < 1 \\ 2, & \text{if } 1 \le x < 4 \\ x-5, & \text{if } x \ge 4 \end{cases}$$

7. On the following graph, complete the tables and graph the following piecewise function

$$f(x) = \begin{cases} 3x-5 & \text{if } x > 4 \\ x^2 & \text{if } 0 < x \le 4 \end{cases}$$

| x | y |
|---|---|
| 4 | 7 |
| 5 | 10 |
| 6 | 13 |
| 7 | 16 |
| 8 | 19 |

| x | y |
|---|---|
| 0 | 0 |
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |
| 4 | 16 |