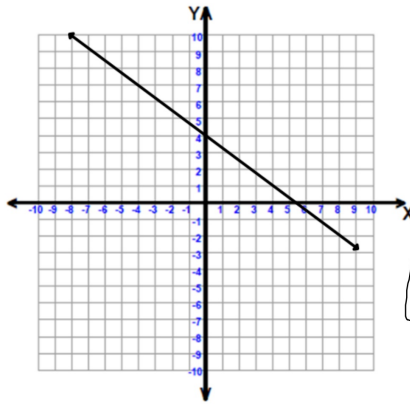


DO NOW

Name the function shown below.



$$m = -\frac{3}{4}$$

$$b = 4$$

$$y = mx + b$$

$$y = -\frac{3}{4}x + 4$$

4.3 Piecewise Functions - Day 3

Write the piecewise functions depicted by the given graphs.

- ** Focus on one piece at a time
- ** Work from left to right
- ** Extend lines to identify y-intercepts
- ** Pay attention to the endpoint circles when writing domains or ranges.

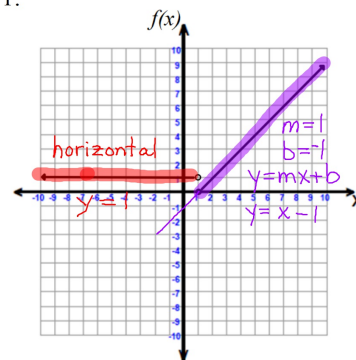
Domain: x-values
horizontal

Range: y-values
vertical

Possible answers:

1. all reals
2. inequalities
Ex: $y \geq -2$
3. $x = \{ \text{list} \}$
 $y = \{ \text{list} \}$
4. Connect "pieces" with a $\cup$ ← union
Ex: $(y < 4) \cup (y \geq 5)$

1.



Write the function:

$$f(x) = \begin{cases} 1 & \text{for } x < 1 \\ x-1 & \text{for } x \geq 1 \end{cases}$$

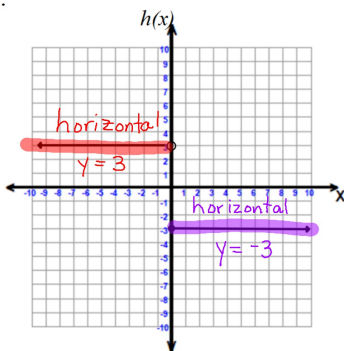
Domain of function:

all reals

Range of function:

$$y \geq 0$$

2.



Write the function:

$$h(x) = \begin{cases} 3 & \text{for } x < 0 \\ -3 & \text{for } x \geq 0 \end{cases}$$

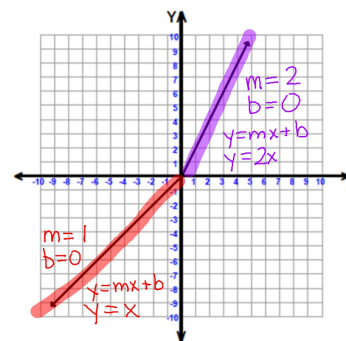
Domain of function:

all reals

Range of function:

$$y = \{-3, 3\}$$

3.



Write the function:

$$y = \begin{cases} x & \text{for } x \leq 0 \\ 2x & \text{for } x \geq 0 \end{cases}$$

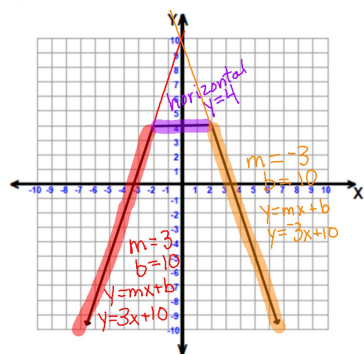
Domain of function:

all reals

Range of function:

all reals

4.

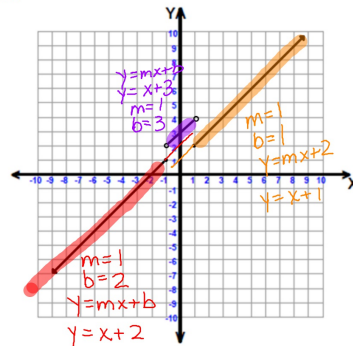


Write the function:

$$y = \begin{cases} 3x+10 & \text{for } x \leq -2 \\ 4 & \text{for } -2 < x < 2 \\ -3x+10 & \text{for } x \geq 2 \end{cases}$$

Domain of function:
all realsRange of function:
 $y \leq 4$

5.



Write the function:

$$y = \begin{cases} x+2 & \text{for } x \leq -1 \\ x+3 & \text{for } -1 < x < 1 \\ x+1 & \text{for } x \geq 1 \end{cases}$$

Domain of function:
all realsRange of function:
 $(y \leq 1) \cup (y \geq 2)$

HOMEWORK

Worksheet HW 4.3

Write Piecewise Functions