

# DO NOW

What is the domain and range of the function?

$\{(1, 3), (3, 6), (5, 8), (9, 9)\}$

domain:  $\{1, 3, 5, 9\}$

range:  $\{3, 6, 8, 9\}$

## 4.3 Piecewise Functions - Day 2

piecewise function: pieces of more than one function on the same graph

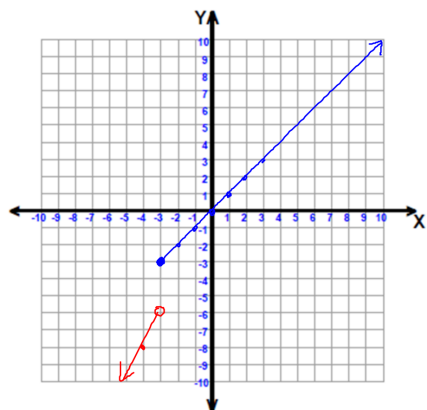
Domain:  $x$ -values ("neighborhood")

Range:  $y$ -values (heights)

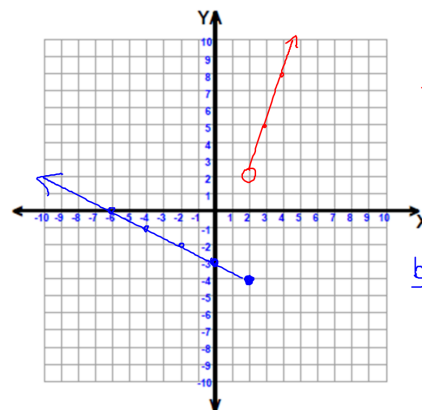
\*\*Yesterday: we worked on graphing pieces of a single function.

\*\*Today: we will combine more than one piece on the same graph

1. Graph  $f(x) = \begin{cases} 2x & \text{if } x < -3 \\ x & \text{if } x \geq -3 \end{cases}$   $m = \frac{2}{1} \rightarrow b = 0$   
 $m = \frac{1}{1} \rightarrow b = 0$



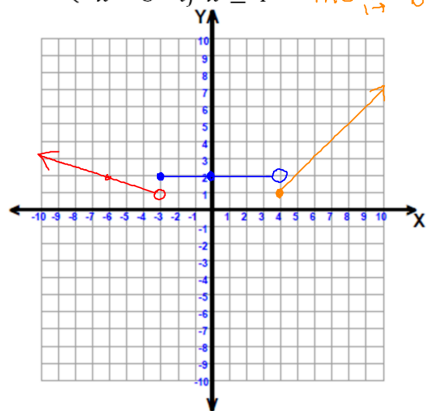
2. Graph  $f(x) = \begin{cases} 3x - 4 & \text{if } x > 2 \\ -\frac{1}{2}x - 3 & \text{if } x \leq 2 \end{cases}$   $m = \frac{3}{1} \rightarrow b = -4$   
 $m = -\frac{1}{2} \rightarrow b = -3$



red part  
domain:  $x > 2$   
range:  $y > 2$

blue part  
domain:  $x \leq 2$   
range:  $y \geq -4$

3. Graph  $f(x) = \begin{cases} -\frac{1}{3}x & \text{if } x < -3 \\ 2 & \text{if } -3 \leq x < 4 \\ x - 3 & \text{if } x \geq 4 \end{cases}$   $m = -\frac{1}{3} \rightarrow b = 0$   
horizontal  
 $m = \frac{1}{1} \rightarrow b = -3$



# HOMEWORK

Worksheet HW 4.3 - Day 2

Graphing Piecewise Function