x y

L3 Domain and Range

Before we start graphing relations we must know some vocabulary of graphs.

Linear graphs: straight line

Non-Linear graphs: curved lines

Continuous Data: a line graph which does not break. In word problems it is where the variables contain parts. (eg time)

time

Discrete Data: where the graph just contains points. In word problems it is where you can only have whole variables.

Dice

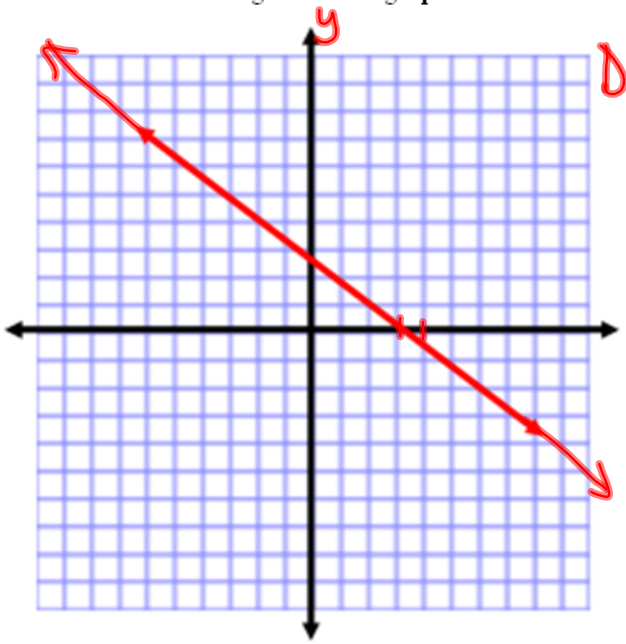
{1,2,3}

So far we have only seen domain and range with discrete data (points) but with continuous data it will contain inequality signs (greater than or less than).

< less than > greater than

≤ less than or equal to ≥ greater than or equal to

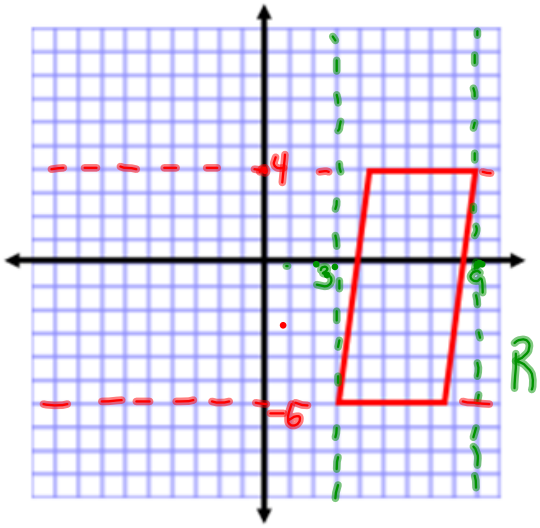
State the domain and range of each graph.



$D: \{x \mid x \in \mathbb{R}\}$

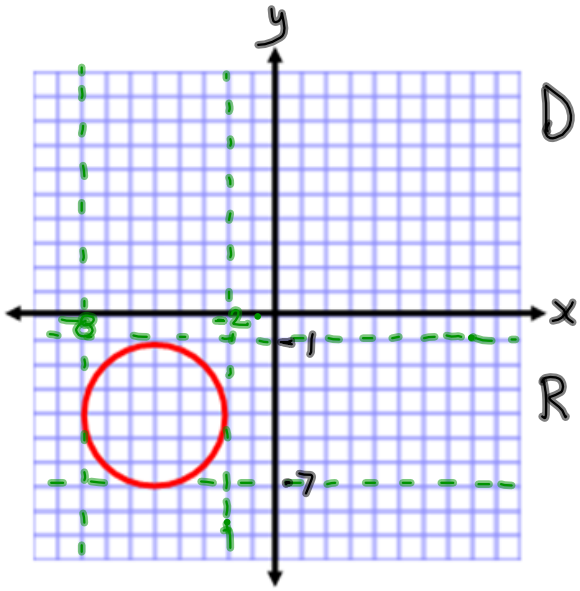
x such that x is an element of the real numbers.

$R: \{y \mid y \in \mathbb{R}\}$



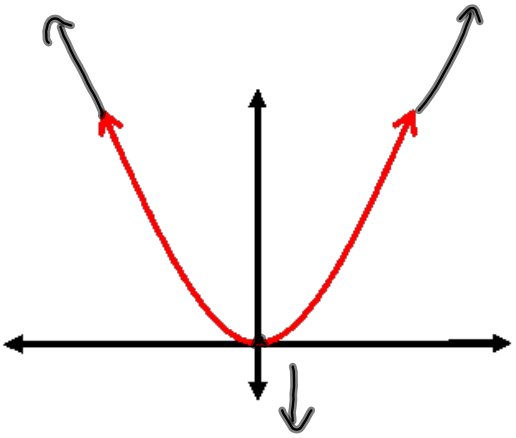
$D: \{x \mid 3 \le x \le 9, x \in \mathbb{R}\}$

$R: \{y \mid -6 \le y \le 4, y \in \mathbb{R}\}$



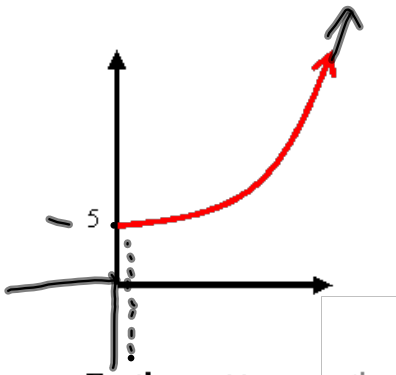
$D: \{x \mid -8 \le x \le -2, x \in \mathbb{R}\}$

$R: \{y \mid -7 \le y \le -1, y \in \mathbb{R}\}$



$D: \{x \mid x \in \mathbb{R}\}$

$R: \{y \mid y \geq 0, y \in \mathbb{R}\}$



$D: \{x \mid x \geq 0, x \in \mathbb{R}\}$

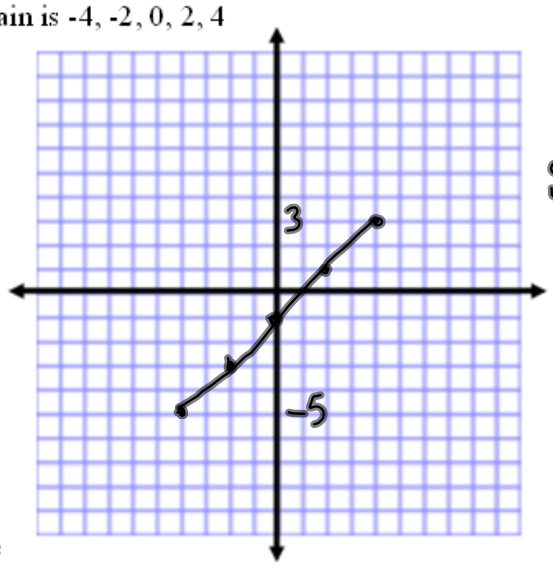
$R: \{y \mid y \geq 5, y \in \mathbb{R}\}$

For the next two questions fill out the table of values, graph each point and state the range if the domain is -4, -2, 0, 2, 4

$y = x - 1$

X	Y
-4	-5
-2	-3
0	-1
2	1
4	3

Use equation to determine y value



Straight

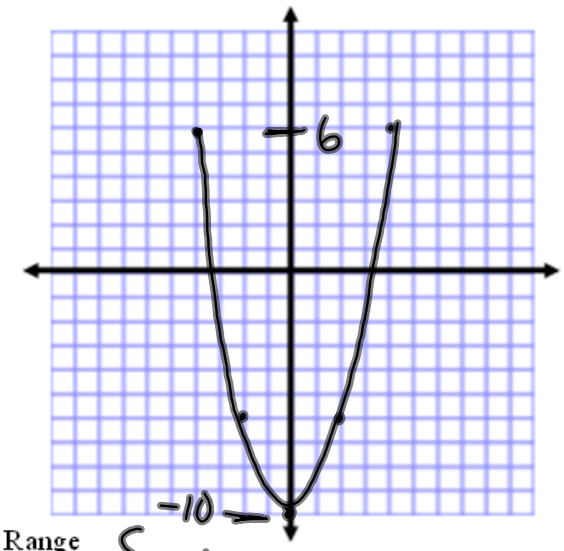
∴ linear

Range

$R: \{y \mid -5 \leq y \leq 3, y \in \mathbb{R}\}$

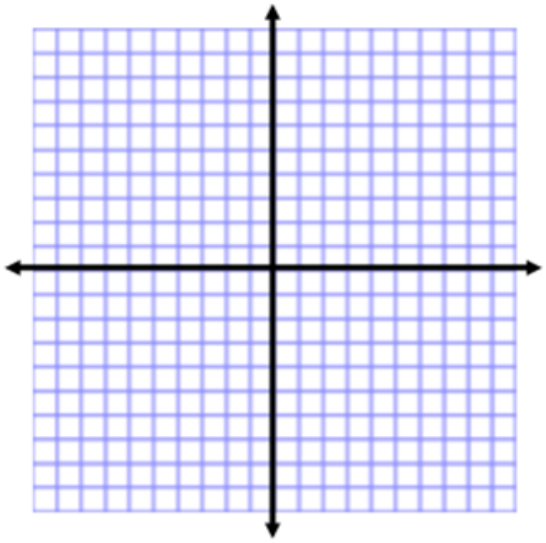
$y = x^2 - 10$

X	Y
-4	6
-2	-6
0	-10
2	-6
4	6



Range $\{y \mid -10 \le y \le 6, y \in R\}$

Graph $y = x - 4$ **than state the range if the domain** $x \in R$



Range

Homework P 294 #4, 7, 8(only domain and range), 9 and worksheet