

And most importantly, the definition of a **function**.

Example 1: This is a function

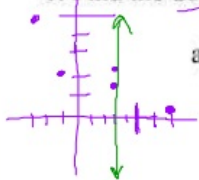
Day	1	2	3	4
Low Temp ( <sup>o</sup> F)	55	51	57	57

Example 2: This is **NOT** a function

Day	1	2	2	3
Low Temp ( <sup>o</sup> F)	55	51	57	45

Notice: one day cannot have two different low temps!

1. Find the domain and range, and determine whether or not it is a function. If not a function, circle the problem.



a)

x	-3	-1	3	3	7
y	25	12	11	8	2

D:

R:

Function?

$\{-3, -1, 3, 7\}$   $\{25, 12, 11, 8, 2\}$  No

$x = 3$  is duplicated

b)

x	1	3	5	7	9
y	4	5	5	5	5

D:

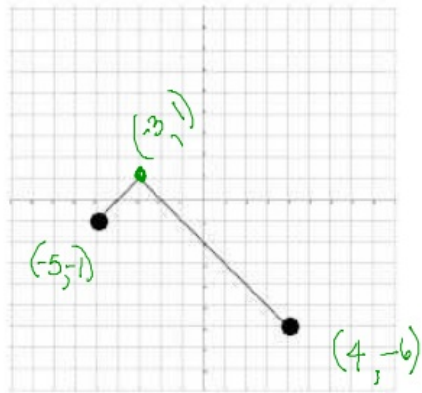
R:

Function?

$\{1, 3, 5, 7, 9\}$   $\{4, 5\}$  Yes

2. Identify the domain and range, and use the **Vertical Line Test (VLT)** to determine whether a graph is a function or not:

a)



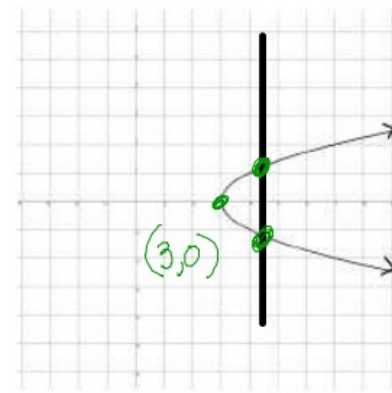
D:

R:

Function?

$-5 \leq x \leq 4$   $-6 \leq y \leq 1$  yes

b)



D:

R:

Function?

$x \geq 3$   $\mathbb{R}$  no

Review . . . .

When  $m = 5$ , find the value of  $3m - 2$

$$3(5) - 2 \\ 13$$

**Function Notation:**

$$f(x) = 2x + 1$$

$f$  of  $x$  equals \_\_\_\_\_

Use these for examples 3 and 4 below:

$$f(x) = 2x + 1$$

$$h(x) = x^2 - 4$$

$$3x^2 - 4$$

$$\begin{aligned} 3. \text{ a) } f(-5) &= 2(-5) + 1 \\ &= -10 + 1 \\ &= -9 \end{aligned}$$

$$\begin{aligned} 4. \text{ a) } h(3) &= (3)^2 - 4 \\ &= 9 - 4 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \text{b) } f(0) &= 2(0) + 1 \\ &= 0 + 1 \\ &= 1 \end{aligned}$$

$$\begin{aligned} \text{b) } h(-2) &= (-2)^2 - 4 \\ &= 4 - 4 \\ &= 0 \end{aligned}$$

$$\begin{aligned} \text{c) } f(3) &= 2(3) + 1 \\ &= 6 + 1 \\ &= 7 \end{aligned}$$

$$\begin{aligned} \text{c) } h(0) &= (0)^2 - 4 \\ &= -4 \end{aligned}$$

Review: Write the definition for domain: \_\_\_\_\_

Find the domains:

$$5. T(x) = \frac{5}{x+3}$$

$$x+3 \neq 0 \\ x \neq -3$$

$\mathbb{R}$  ex.  $x \neq -3$

$$6. R(x) = \frac{1}{(2x-1)}$$

$$2x-1 \neq 0 \\ 2x \neq 1 \\ x \neq \frac{1}{2}$$

$\mathbb{R}$  ex.  $x \neq \frac{1}{2}$

$$\begin{array}{r} x \ y \\ \hline 5 \\ 2 \\ 0 \end{array}$$

$$7. K(x) = |x-4|$$

$\mathbb{R}$

**Homework**