Algebra 1	Topic: 4.2 Domain, Range, and Function Notation	Name:
		Class/Period:
		Date:

Objective/Goal: **Identify Functions using mapping, table of values, function tables, etc**

Example	Justification (Steps)
Define Domain: (INPUT) (x) HOW FAR LEFT AND RIGHT A GRAPH GOES	
Define Range: (OUTPUT) (y) HOW FAR DOWN AND UP A GRAPH GOES	
Consider a vending machine where inserting 25 cents dispenses one pencil, inserting 50 cents dispences 2 pencils, and so forth up to and including all 10 pencils in the vending machine. a) What is the domain in this situation? $ b) What is the range in the situation? PENCILS	$0.25 → 1 PENCIL $0.50 → 2 PENCILS ...

For each function below, identify the domain and range:

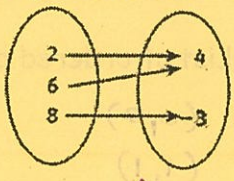
a)

input	output
7	6
3	−2
5	1

Domain: {3, 5, 7}

Range: {−2, 1, 6}

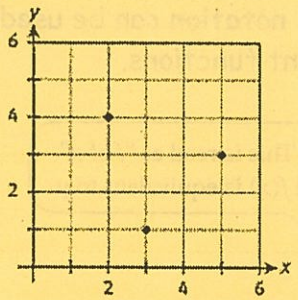
b)



Domain: {2, 6, 8}

Range: {−3, 4}

c)



Domain: {2, 3, 5}

Range: {1, 3, 4}

d) {(−7, 0)(9, −3)(−6, 2.5)}

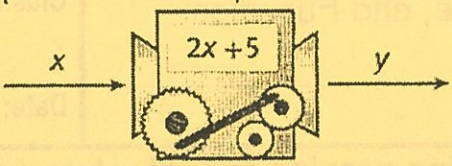
Domain: {−7, −6, 9}

Range: {−3, 0, 2.5}

Each of the functions that you have seen has a finite number of ordered pairs. There are functions that have an infinite number of ordered pairs. Describe any difficulties that may exist trying to represent a function with an infinite number of ordered pairs using the four representations of functions we seen thus far.

CW/HW 4.2 Both sides

Sometimes, machine diagrams are used to represent functions. In the function machine below, the inputs are labeled x and the outputs are labeled y. The function is represented by the expression $2x + 5$.



$f(x) =$
$y =$

a) If x = 7 is used as an input, what is the output? $x=7 \rightarrow 2(7)+5 \rightarrow y=19$

b) If x = -2 is used as an input, what is the output? $x=-2 \rightarrow 2(-2)+5 \rightarrow y=1$

c) If $x = \frac{1}{2}$ is used as an input, what is the output? $x=\frac{1}{2} \rightarrow 2(\frac{1}{2})+5 \rightarrow y=6$

d) Is there any limit to the number of input values that can be used with the expression? Explain.

NO... INFINITE

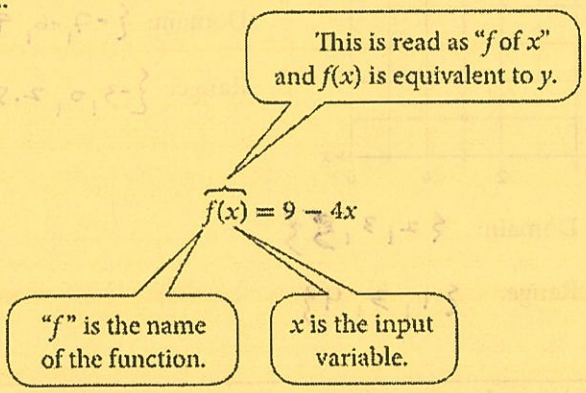
Evaluate each function for $x = -2, x = 5, x = \frac{2}{3}$ and $x = 0.75$. For each x-value, find the corresponding y-value. Place the results in a table.

a) $y = 9 - 4x$ b) $y = \frac{1}{x}$

[a] $y = 9-4x$ [b] $y = \frac{1}{x}$

	a	b
$x=-2$	$y=17$	$y=-\frac{1}{2}$
$x=5$	$y=-11$	$y=\frac{1}{5}$
$x=\frac{2}{3}$	$y=\frac{19}{3}$	$y=\frac{3}{2}$
$x=0.75$	$y=6$	$y=\frac{1}{0.75}$

When referring to the functions above, it can be confusing to distinguish among them since each begins with "y=". **Function notation** can be used to distinguish among different functions.



Evaluate $f(x) = 3 - 2x$ for $x = 0,1,2,3$

$f(0) = 3 - 2(0) \rightarrow f(0) = 3$

$f(1) = 3 - 2(1) \rightarrow f(1) = 1$

$f(2) = 3 - 2(2) \rightarrow f(2) = -1$

$f(3) = 3 - 2(3) \rightarrow f(3) = -3$

Use the values for x and f(x) and display the values using each representation.

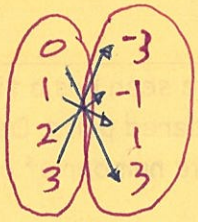
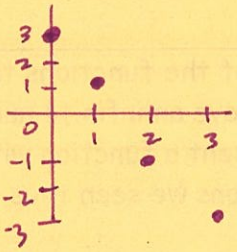
a) List of ordered pairs

(0, 3)
(1, 1)
(2, -1)
(3, -3)

b) table of values

I	O
0	3
1	1
2	-1
3	-3

c) mapping



c) graph