Name **Key**   Date _____   Period 1 2 3 6 7

Math 8: Unit 4 Study Guide (Complete and check answers on blog. Test is Tuesday, January 19.)
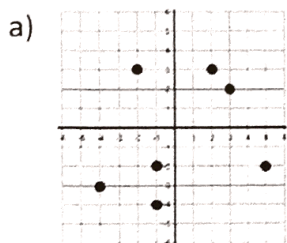
1) What is a function?

A relation where every input has only one output

2) What are the different ways that a function can be represented?

graph   equation
input/output table   domain and range
ordered pairs   verbal
mapping diagram

3) For each of the following, write whether or not it is a function and how you know.

a)
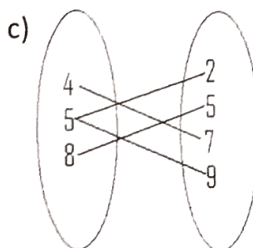

Not a function
It fails the vertical line test

b)

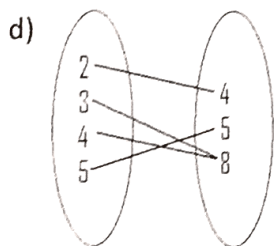| x	y
-2	-2
-1	2
0	6
1	10
2	14

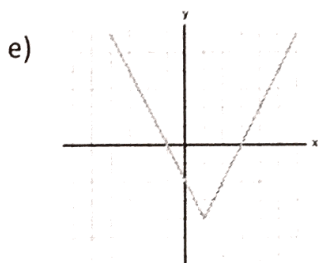Function
Each input has only one output

c)

NOT a Function
The input 5 cannot have two different outputs

d) $y = 5x - 8$

Function
Each input has only one output

d)

Function
Each input has only one output

e)

Function
It passes the vertical line test

f) $x = 3$

Not a function
No matter what y is, x is 3, so that input has infinitely many outputs
(It would be a vertical line when graphed)

g)

x	y
3	1
4	2
6	3
3	4
4	5

NOT a function
The input 3 cannot have two different outputs

4) Complete the function table below:

x	1	4	5	8	9
y	0	15	24	63	80

Equation: $y = x^2 - 1$

5) Given inputs of {2, 4, 6, 8} name the domain and range of the function: $y = \frac{x}{2} - 7$

$y = \frac{2}{2} - 7$ $y = \frac{4}{2} - 7$ $y = \frac{6}{2} - 7$ $y = \frac{8}{2} - 7$
$1 - 7$ $2 - 7$ $3 - 7$ $4 - 7$
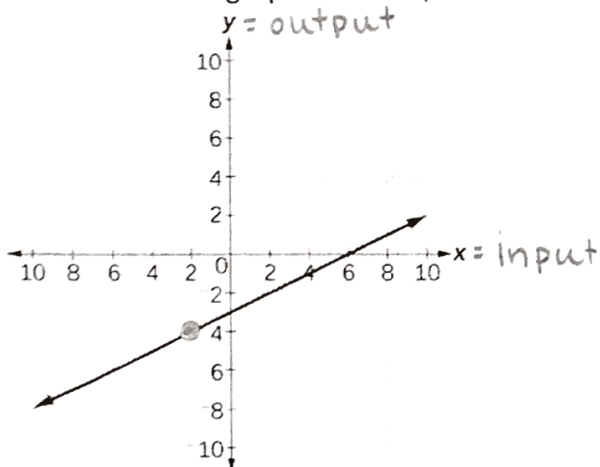$y = -6$ $y = -5$ $y = -4$ $y = -3$

Domain: $\{2, 4, 6, 8\}$
Range: $\{-6, -5, -4, -3\}$

6) For the function graphed below, what is the output when the input is -2?

When -2 is the input,
-4 is the output.

7) If the relationship between the number of texts you send and your cell phone bill was graphed, which variable should be graphed on the x-axis? Why?

The number of texts sent would go on the x-axis because it is the independent variable.

8) At a football game, the winner is determined by which team scores more point. Identify the dependent and independent variables for this situation.

Dependent: The winner of the game

Independent: The number of points scored

9) Harold is raking lawns to earn spending money. The fee he charges for raking a lawn is calculated based on how long it takes to rake it. Identify the dependent and independent variables for this situation.

Dependent: The fee Harold charges

Independent: The time it takes to rake the yard