

To earn your full participation point for the Do Now be sure to have completed all of the following by the time is up:

- 1) Be in your seat
- 2) Take out your calculator
- 3) Have last night's homework out
- 4) Complete the do now



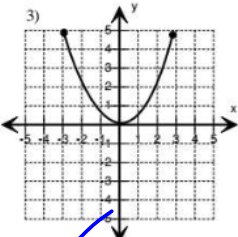
Name: _____

Algebra 9 Unit 3 Lesson 2

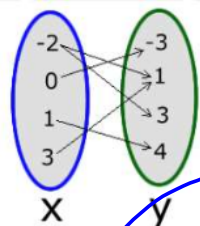
Function Notation

DO NOW ~ Wednesday 1/15

Function or not a function?



☒ Function
☐ Not a Function



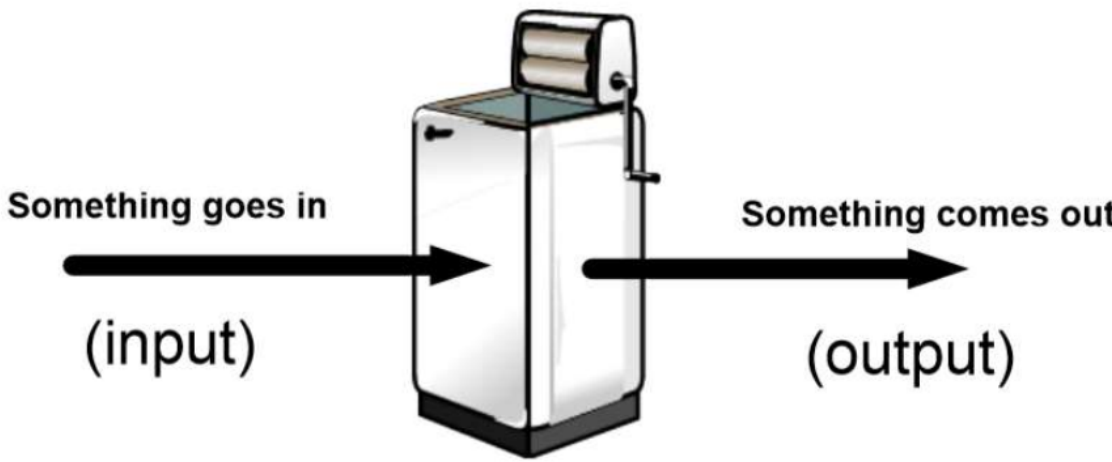
X Y

$(-2, 5)$ $(0, 1)$
 $(-1, 2)$ $(1, 2)$
 $(2, 5)$ $(3, 4)$

NOT A function

STOP STOP STOP

Classwork



Function Notation

$$y = f(x)$$

Continue onto the next page.

For each of the following functions, find the outputs for the given inputs.

(a) $f(x) = 3x + 7$

$f(2) = 3(2) + 7$

$f(2) = 13$

$f(-3) = 3(-3) + 7$

$f(-3) = -2$

(b) $g(x) = \frac{x-6}{2}$

$g(20) =$

$g(20) = \frac{20-6}{2}$

$g(20) = 7$

$g(0) =$

$g(0) = \frac{0-6}{2}$

$g(0) = -3$

(c) $h(x) = \sqrt{2x+1}$

$h(4) = \sqrt{2(4)+1}$

$h(4) = \sqrt{9}$

$h(0) =$

$h(0) = \sqrt{2(0)+1}$

$h(0) = \sqrt{1}$

Exercise #2: Given the function $f(x) = \frac{x}{3} + 7$ do the following.

(a) Explain what the function rule does to convert the input into an output.

x is being divided by 3 and then add 7.

(b) Evaluate $f(6)$ and $f(-9)$.

$f(6) = \frac{6}{3} + 7$

$f(6) = 9$

$f(-9) = \frac{-9}{3} + 7$

$f(-9) = 4$

(c) Find the input for which $f(x) = 13$. Show the work that leads to your answer.

$f(x) = \frac{x}{3} + 7$

$13 = \frac{x}{3} + 7$

$13 - 7 = \frac{x}{3} + 7 - 7$

$6 = \frac{x}{3}$

$18 = x$

DO NOW ~ Thursday 1/16

Given the function f defined by the formula $f(x) = 2x + 1$ find the following:

$$f(4)$$

**Classwork**

Exercise #3: Boiling water at 212 degrees Fahrenheit is left in a room that is at 65 degrees Fahrenheit and begins to cool. Temperature readings are taken each hour and are given in the table below. In this scenario, the temperature, T , is a function of the number of hours, h .

h (hours)	0	1	2	3	4	5	6	7	8
$T(h)$ ($^{\circ}F$)	212	141	104	85	76	70	68	66	65

(a) Evaluate $T(2)$ and $T(6)$.

(b) For what value of h is $T(h) = 76$?

(c) Between what two consecutive hours will $T(h) = 100$? Explain how you arrived at your answer.

DO NOW ~ Friday 1/17

Given the function f defined by the formula $f(x) = 2x + 1$ find the following:

$$f(-5)$$

**Classwork**

Exercise #3: The function $y = f(x)$ is defined by the graph shown below. It is known as **piecewise linear** because it is made up of **straight line segments**. Answer the following questions based on this graph.

(a) Evaluate each of the following:

$$f(1) =$$

$$f(5) =$$

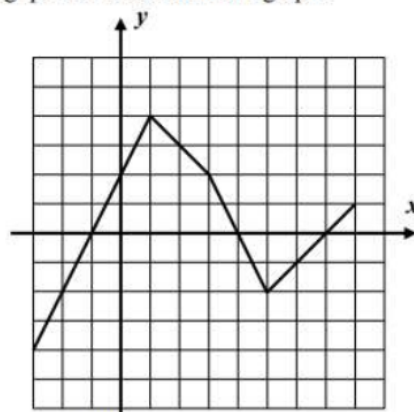
$$f(-3) =$$

$$f(0) =$$

(b) Solve each of the following for all values of the input, x , that make them true.

$$f(x) = 0$$

$$f(x) = 2$$



(c) What is the largest output achieved by the function? At what x -value is it hit?

DO NOW ~ Tuesday 1/21

Given the function f defined by the formula $f(x) = 2x + 1$ find the following:

$$f(x) = 11$$

**Classwork**

Based on the graph of the function $y = g(x)$ shown below, answer the following questions.

(a) Evaluate each of the following. Illustrate with a point on the graph.

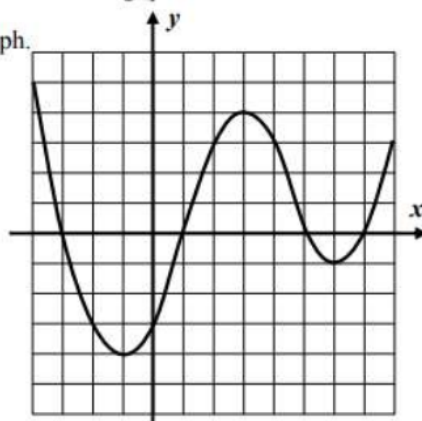
$$g(-2) =$$

$$g(0) =$$

$$g(3) =$$

$$g(7) =$$

(b) What values of x solve the equation $g(x) = 0$? These are called the **zeroes of the function**



(c) How many values of x solve the equation $g(x) = 2$? How can you illustrate your answer on the graph? Remember, we are not looking for the exact x -values, only **how many solutions**.

Mrs. Ferreri’s Station ~ Functions

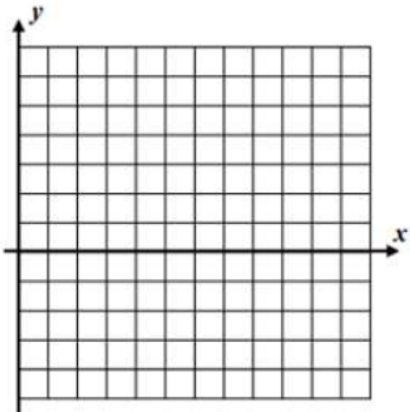
Exercise #1: Consider the function rule: multiply the input by two and then subtract one to get the output.

- (a) Fill in the table below for inputs and outputs. Inputs are often designated by x and outputs by y .

Input x	Calculation	Output y
0		
1		
2		
3		

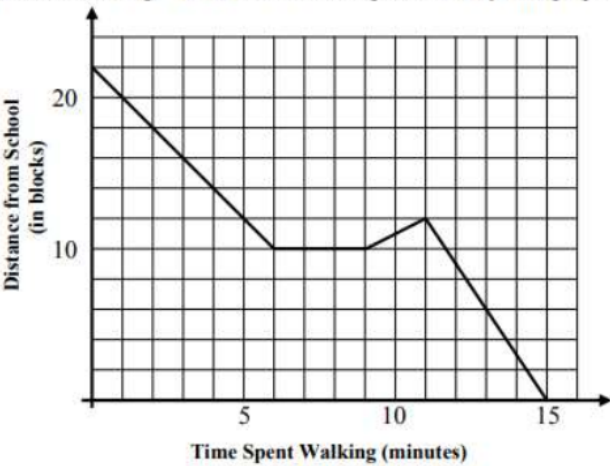
- (b) Write an equation that gives this rule in symbolic form.

- (c) Graph the function rule on the graph paper shown below. Use your table in (a) to help.



Exercise #5: Charlene heads out to school by foot on a fine spring day. Her distance from school, in blocks, is given as a function of the time, in minutes, she has been walking. This function is represented by the graph given below.

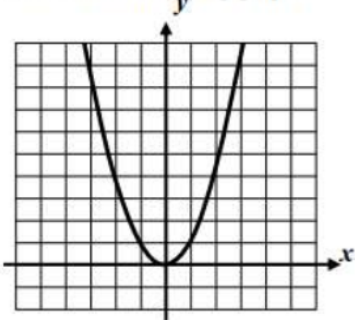
- (a) How far does Charlene start off from school?
- (b) What is her distance from school after she has been walking for 4 minutes?
- (c) After walking for six minutes, Charlene stops to look for her subway pass. How long does she stop for?



- (d) Charlene then walks to a subway station before heading to school on the subway (a local). How many blocks did she walk to the subway?
- (e) How long did it take for her to get to school once she got on the train?

Continue onto the next page.

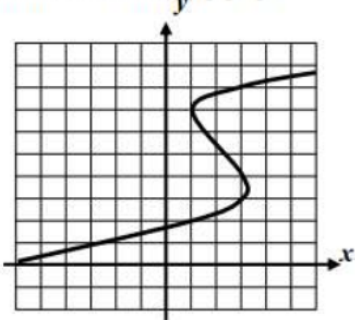
(c) Consider the following graph



Input x	Calculation	Output(s) y
-2	None	
1	None	
2	None	

Function? Yes/No

(d) Consider the following graph

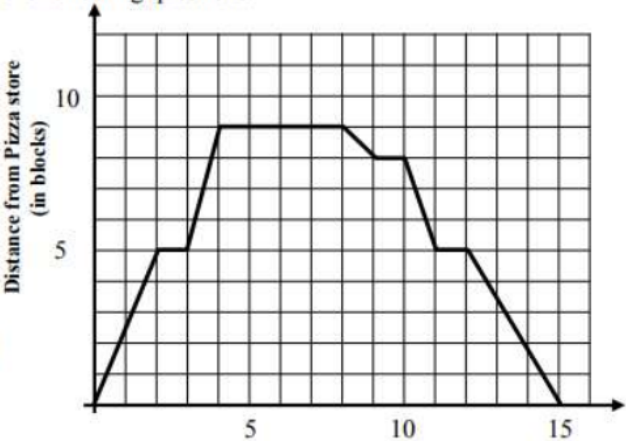


Input x	Calculation	Output(s) y
-3	None	
1	None	
3	None	

Function? Yes/No

Andrew has a new job at the local pizza store as a delivery boy. The following graph shows one of his deliveries he made. Analyze the graph and answer the following questions.

- (a) How long was the entire trip?
- (b) If he arrived at the house after 4 minutes, how far away was the house from the pizza place?
- (c) Why might Andrew have stopped 3 times for 1 minute?



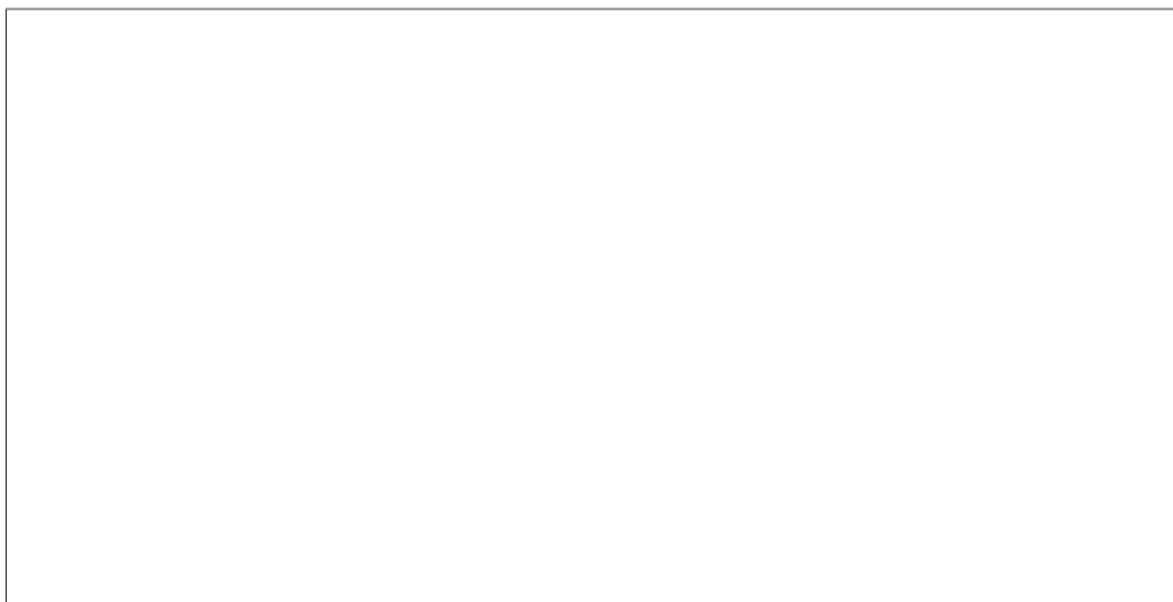
- (d) Was Andrew's trip longer going to the house or coming back?

Computer Station ~ Google Classroom Videos

1) Go to the Google Classroom and click on the **Evaluating Functions in Function Notation** video.

a) How else can y be written? _____

b) Complete the "Guided Practice" section with her in the space below:



2) Now click on the **Identifying a Function** video.

a) How can you tell if an ordered pair is a function? _____

b) How can you tell if a graph is a function? _____

c) How can you tell if a mapping diagram is a function? _____

Mrs. Kennedy's Station ~ *Connect the Dots*



Continue onto the next page.

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

2) $f(4), f(x) = -3x + 1$

3) $f(2), f(x) = x^3 - 4$

4) $f(1), f(x) = x + x$

5) $f(8), f(x) = x^2 - 64$

6) $f(15), f(x) = 2x - 7$

7) $f(10), f(x) = x - 2$

8) $f(-2), f(x) = 3x + 4$

9) $f(2), f(x) = (-x)^3$

10) $f(3), f(x) = 4x - 7$

11) $f(6), f(x) = 8x + 5$

12) $f(1), f(x) = 10x - 3$

13) $f(5), f(x) = 3x - 2$

14) $f(10), f(x) = -2x + 3$

15) $f(1), f(x) = x^2$

16) $f(3), f(x) = 2x^2 - 6$

17) $f(3), f(x) = x^3 - 2$

18) $f(2), f(x) = -x^3 - 1$

19) $f(4), f(x) = 10x - 9$

20) $f(-2), f(x) = -x^2$

21) $f(4), f(x) = -3x$

22) $f(7), f(x) = 2x - 10$

23) $f(11), f(x) = 4x - 11$

24) $f(25), f(x) = 3x + 25$

25) $f(7), f(x) = 11x$

26) $f(10), f(x) = x^2 - 9$

27) $f(4), f(x) = -x^3 - 16$

28) $f(8), f(x) = x^2 - 1$

29) $f(5), f(x) = 4x - 5$

30) $f(-2), f(x) = 25x - 1$

Independent Station ~ Card Sort

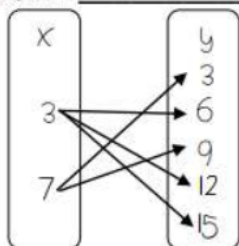
Place the cards under the correct column.

 Function	 Not a Function

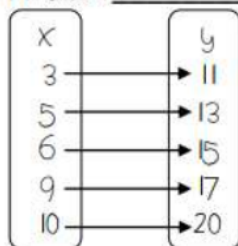
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Tell whether each relationship is a function:

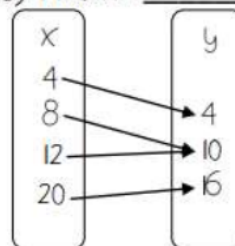
1) Function? _____



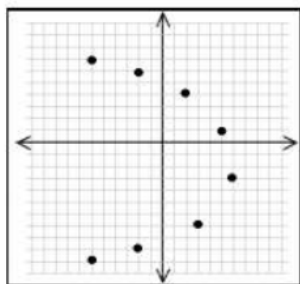
2) Function? _____



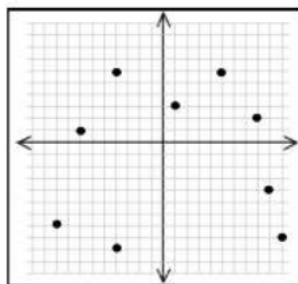
3) Function? _____



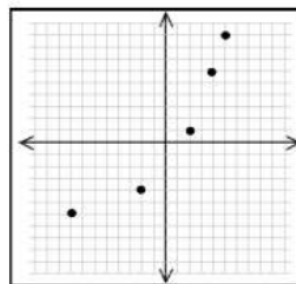
4) Function? _____



5) Function? _____



6) Function? _____



7) Function? _____

X	-1	0	1	2
y	5	2	0	2

8) Function? _____

X	1	2	3	3
y	4	5	6	9

9) Function? _____

X	0	1	2	3
y	5	5	5	5

10) Function? _____

$\{(4,5) (6,8) (7,9) (8,8)\}$

11) Function? _____

$\{(-2,5) (-1,0) (0,-5)\}$

12) Function? _____

$\{(1,1) (2,4) (2,3) (1,0)\}$

Homework ~ Wednesday 1/15

(a) Consider the following relation: multiply the input by five and then subtract seven to get the output.

Input x	Calculation	Output y
-3		
0		
6		

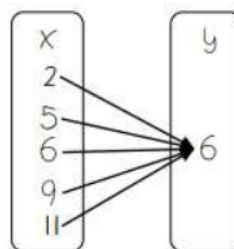
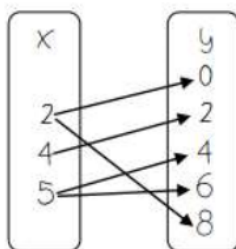
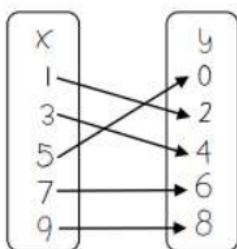
Function? Yes/No

(b) Consider the following table;

Input x	Calculation	Output y
-2	None	4
3	None	3
3	None	2

Function? Yes/No

Determine whether each Mapping Diagram represents a function



Determine whether each Set of Ordered Pairs represents a function

$\{(4,5) (5,8) (5,9)\}$

$\{(1,4) (-1,4) (-3,7)\}$

$\{(3,7) (5,8) (3,9)\}$

Homework ~ Thursday 1/16

Given the function g defined by the formula $g(x) = \frac{x-5}{2}$ find the following:

(a) $g(9)$

(b) $g(0)$

(c) $g(3)$

(d) $g(17)$

Homework ~ Tuesday 1/21

If the function $f(x)$ is defined by $f(x) = \frac{x}{2} - 6$ then which of the following is the value of $f(10)$?

(1) -1

(3) 14

(2) 2

(4) 7

Given the function f defined by the formula $f(x) = x^2 - 4$ find the following:

(a) $f(3)$

(b) $f(-4)$

(c) $f(0)$

(d) $f(-2)$