Warmup 9/ (Area of a square with a side length of 3)

For 1 & 2, select the correct graph and explain why you chose it.



3) Draw a graph with an x-axis of "time" and a y-axis of "distance traveled" that would be impossible – that is, where Tom would be in 2 places at once.

Go over Graphing Stories WS

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YOU DO NOT NEED TO LABEL A NEW NOTES PAGE. THIS WILL BE A HANDOUT!!!

What is a Function?

Objectives:

-Introduce yourself to the VERY important math concept of a "function"

-Decide if a table, graph, or situation is or is not a function

5

Game: Guess My Rule

<u>Input</u> <u>Output</u> -4 -18

Input	<u>Output</u>
10	45
7	19.5
3	-0.5
6	13
10	45
-6	19

Input	<u>Output</u>
5	13
2	13
97	13
-3.2	13
0	13



•(It has to be "fair"!!!)

Rest of today:

- We will simply be asking the question "Is this a function???"
- We will do more practice later with trying to figure out what the rule is. But for now, all we care about is if the rule is FAIR or not.



No; the input "5" has more than one output.

X	У
-8	16
10	-20
1	-2
4	-8
1	-2

Yes; there is a repeated input, but the output is the same.

X	У
1	5
1	6
2	7
2	8
3	9

No; the inputs "1" and "2" have more than one output.

X	У
1	24
2	9
3	-6
4	-21
5	-36

Yes; each input has only one output.

X	У
1	-2
2	-2
3	-2
4	-2
5	-2

Yes; each input has only one output. (You can have the same output for multiple inputs!)

(2, 8); (-5, 9); (7, 9); (2, -4), (7, 4)

No; the input "2" has more than one output.

(1, 5); (8, 19); (4, 11); (-8, -13), (1, 5)

Yes, each input has only 1 output.

Mapping Diagram:

Express the relation (2,0), (5, 9), (-1, 9), (-2, 16) as a mapping diagram.





Yes, each input has only 1 output.



No; the input "6" has more than one output.



Yes, each input has only 1 output.

IS IT A FUNCTION?

One input \rightarrow Multiple outputs = **BAD** Multiple inputs \rightarrow one output = **OK**

(There are several types of mathematical rules that can give you repeated outputs. For example, multiplying by zero then adding anything. Squaring a number. Taking the absolute value. And many, many more!)

Let's look at some graphs

now...

8 This graph is just plain wrong. How can Tom be in two places at once?



Time

1 Tom ran from his home to the bus stop and waited. He realized that he had missed the bus so he walked home.

Distance from home

G

Input = time, Output = distance from home

2 different times → same location: does make sense!

Time

What is the input and output of this point?



Input = 8 Output = -3

If the input is 6, what's the output?



Output = 8

On a graph...

• "x" is the input, and "y" is the output.