CH. 1, L2 – FUNCTIONS, INPUTS, AND OUTPUTS

Interaction with New Material:

Ex. 1) Consider the relation below

X	Y
1	3
5	5
7	n

Which of the following statements is false?

a) If n is a positive integer, the relation will be a function

b) If n is a negative integer, the relation will be a function

c) The value of n could be any number besides 3 and 5 and the relation will be a function

d) The value of n could be any number and the relation will be a function

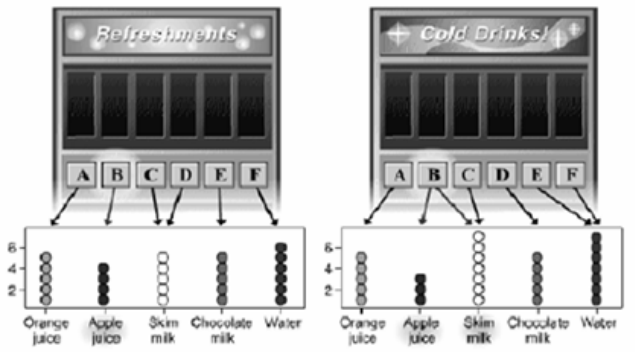
Ex. 2) A relation is represented by the set of points below. Can the relation be described as a function? Explain.

{(0, 3), (-3, 3), (1, -2), (5, 5), (-1, 5), (0, 3)}

Partner Practice:

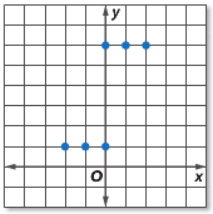
(Low Difficulty)

1. The machine on the left is a function machine. The machine on the right is not a function machine. Using examples from the vending machine, explain what it means to have a function. Why is the machine on the right not a function? Justify with specific examples



2. Circle the graphs that represent a function. Explain why they are functions by describing the vertical line test in terms of inputs and outputs.

5.



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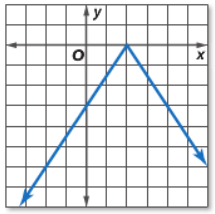

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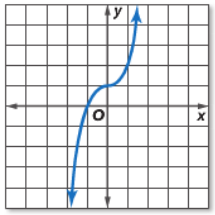

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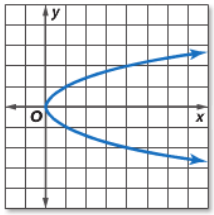

CFS:

- Annotate word problem
- Input and output is annotated or defined
- Answer in a complete sentence
- Explanation includes justification in reference to the inputs and outputs

(Medium Difficulty)

3. Explain if the following situations represent a function or not:

   a. The input is the time of day. The output is the number of people riding the B65 bus at the time on any day in January.

_____

_____

_____

   b. The input is the number of people in a crowd. The output is the number of total toes the group has.

_____

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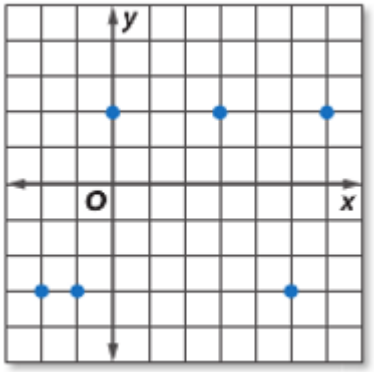
4. Use the graph for the following problems:



   a. Does the graph represent a function?

_____

_____

_____

_____

   b. Name two points that would keep the graph a function.

_____

_____

   c. Name a point that would the relation not a function and explain why

_____

_____

_____

CFS:

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- Answer in a complete sentence
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5. A relation is described by the set of points listed below. Does this relation represent a function? Justify.

{(2, 2), (4, 3), (-2, 2), (-4, 3), (3, -4)}

6. A certain business keeps a database of information about its customers.

Customer Name	Home Phone Number
Heather Baker	3105100091
Mike London	3105200256
Sue Green	3234132598
Bruce Swift	3234132598
Michelle Metz	2138061124

a) Let P be the rule which assigns each customer, C, his or her home phone number. Is P a function of C? Explain your reasoning.

b) Let C be the rule which assigns each phone number, P, the customer name associated with it. Is C a function? Explain your reasoning.

c) Explain why a business would want to use a person's social security number as a way to identify a particular customer instead of their phone number.

- Annotate word problem
- Input and output is annotated or defined
- Answer in a complete sentence
- Explanation includes justification in reference to the inputs and outputs

(Hard Difficulty)

In a few lessons from now, you will learn about the domain and range of a function. The domain is the list of possible inputs and the range is the list of possible outputs. Use this information to answer the following questions.

7. Which of the following function tables describe a function? Explain.

Domain	Range
−4	2
3	−5
4	2
9	−7
−3	−5

Domain	Range
4	6
−5	3
6	−3
−5	5

8. The function f has a domain of {2, 3, 5, 8} and a range of {7, 10, 11}. Could f be represented by {(2, 7), (3, 10), (5, 11), (8, 10)}. Justify your answer with a claim and evidence.

CFS:

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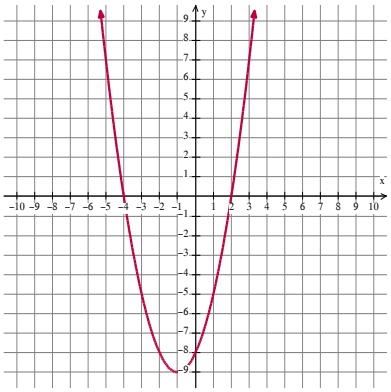
Ch. 2, L2 Do Now

Objective: Given a figure or set of values, I will justify whether a relation represents a function.

Think About It: Recall your work with functions in 8th grade. The column on the left represent functions while the column on the right has relations that are not functions. Describe what makes a function in terms of inputs and outputs using examples from the columns below.

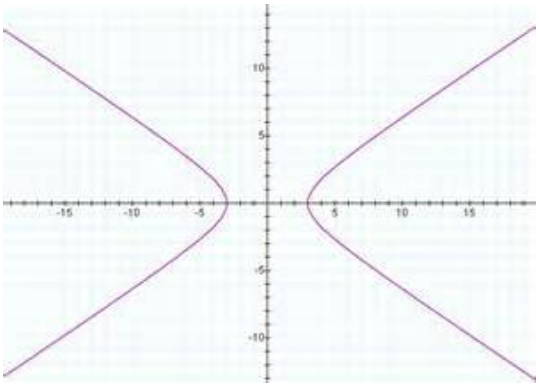
Functions

x	y
-3	-5
-2	-8
-1	-9
0	-8
1	-5
2	0
3	7



Relations (NOT Functions)

x	y
-3	2
-2	3
-1	4
0	5
-1	6
-2	7
-3	8



Big Idea:

CFS:

- Annotate word problem
- Input and output is annotated or defined
- Answer in a complete sentence
- Explanation includes justification in reference to the inputs and outputs

CH. 2, L2 EXIT TICKET

Objective: Given a figure or set of values, I will justify whether a relation represents a function.

Self-Assessment	I mastered the learning objective today.	I am almost there.	Need more practice and feedback.
Teacher Feedback	You mastered the learning objective today.	You are almost there.	You need more practice and feedback.

1. The points below represent a relation. Does the relation also represent a function? Explain. If the relation is not a function, suggest a change that would make the relation a function.

{(1, 3), (2, 5), (3, 8), (-1, 3), (0, 5), (1, 2)}

_____

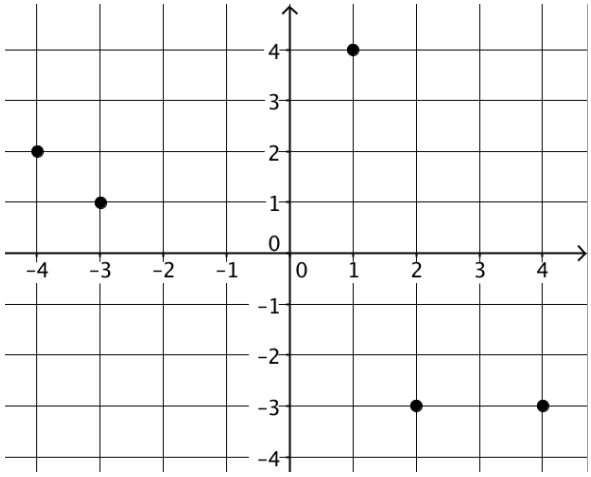
_____

_____

_____

_____

2. Consider the relationship graphed below.



   a. Add a point to the graph that would ensure that the relationship remains a function. Label it Point F.

   b. Add a point to the graph that would change the relationship so that it was not a function. Label it Point N.

CFS:

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- Answer in a complete sentence
- Explanation includes justification in reference to the inputs and outputs