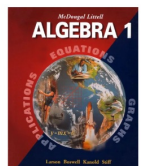## MS Algebra: 2.1.1-Day 2

Warm-up

?'s on homework: Wksht 2.1.1

Goal: I understand function notation and that a function is a relationship between an independent and dependent variable.

HW: pg. 259 #7-9, 11-19

Warm - Up: Associative, Commutative, or Identity?

1) On your way to school - you drive 4 miles to Eisenhower and another 2 miles to get to Northdale. 4+2 = 6 miles. When you travel home at the end of the day, you travel 2 miles to Northdale and the 4 miles to home. 2+4 = 6. What property is this demonstrating?

Commutative

2) Ella, Joe, and Mack total up their money. Ella and Joe combine their money: $7 and $3 and then Mack adds in his $4. How much money do they have total? (7+3)+4 = 14

What if Joe and Mack combine their money first $3 and $4 and then Ella adds in her money. How much money do they have total? 7+(3+4) = 14

What property is this demonstrating? Associative

In the scoring systems of some track meets, for first place you get 5 points, for second place you get 3 points, for third place you get 2 points, and for fourth place you get 1 point.

State the independent and dependent variables for the track meet scoring situation.

| Hint:	What happens 1st - Do you finish the race and know your place 1st? or do you know your points earned 1st?
Independent variable:	place you finish
Dependent variable:	points you earn

Notice in the previous example about the track meet scoring, each input value has exactly one output value. When a relationship exists were each input has only one output, we call the relationship a function.

1. Ordered pairs
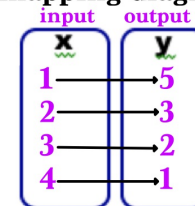(input, output)
(1,5)
(2,3)
(3,2)
(4,1)

3. a graph

points earned / place of finish in meet
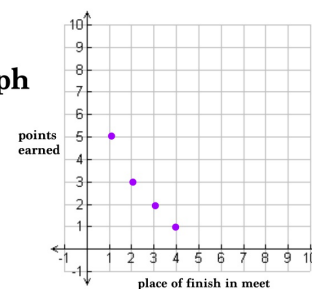
2. A table

input	output
x	y
1	5
2	3
3	2
4	1

4. mapping diagram

input	output
x	y
1	5
2	3
3	2
4	1

Examples that do NOT represent functions:

Ordered pairs:

(1, 4)
(2, 10)
(2, 14)
(4,16)

Table:

x	y
6	8
10	12
12	16
12	20

How can you tell by looking at this set of ordered pairs that it does not represent a function?

The x-value of 2 has more than 1 output - 10 and 14.

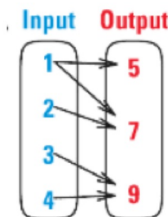**How can you tell by looking at this table that the set of values does not represent a function?**

The x-value of 2 has more than 1 output - 16 and 20.
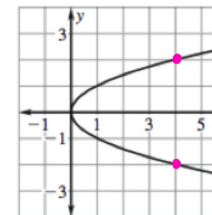
Examples that do NOT represent functions:

Mapping diagram

Input Output

Graph:

How can you tell that this mapping diagram does NOT represent a function?

The x-value (input) of 1 has more than one output- 5 and 7.

How can you tell that this graph does NOT represent a function?

There are x-values that have more than one output. For example, the x-value of 4 has two outputs, 2 and -2.

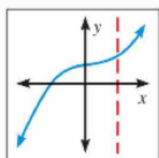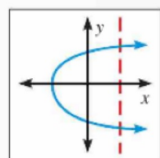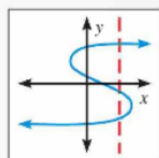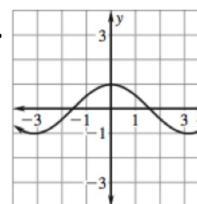| Vertical line test	The vertical line test is a visual way to see if a graph represents a function or not.
Performing the vertical line test	Draw a vertical line anywhere on the graph. If the line passes through the graph at only ONE point, then the graph does represent a function.

Examples:
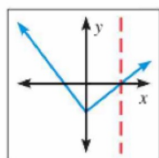
function   function   not a function   not a function

State whether the following represent functions:

A.

Yes- the graph passes the vertical line test. Domain- all real numbers
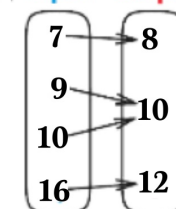Range- all real numbers from -1 to 1.

B. (1, 3) (5, 2) (-2, 4) (5, 0)

No- the x-value (input) of 5 has more than one y-value (output).

C.

Input	Output
2	5
4	6
6	5
8	6

Yes - every input value has only one output value. Domain: 2, 4, 6, 8
Range: 5, 6

D. Input Output

Yes, every input value has only one output value.
Domain: 7, 9, 10, 16
Range: 8, 10, 12