



Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

Vocabulary: Define each word and give an example.

1. Domain
2. Function
3. Arithmetic Sequence

Short Answer:

4. Describe how to determine if a set of ordered pairs is a function.
5. What is the difference between an explicit rule and a recursive rule for an arithmetic sequence?
6. List the four ways to represent a function and give an example of each.

Review:

7. Evaluate  $\frac{2}{3}(a + 8) - a^2$  when  $a = -2$ .
8. Write the commutative property of addition. Use a specific numerical example to illustrate the property.
9. Use the data in the stem-and-leaf plot below. Evaluate the **mean** of the data.

0		4 4 5 9
1		0 1
2		
3		0 2 6 9

Key  $3|2=32$



Problems:

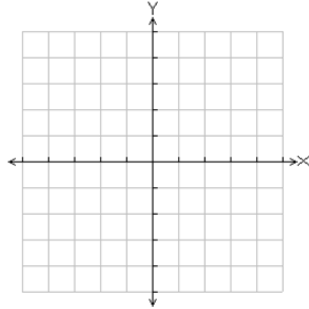
\*\*Be sure to show all work used to obtain your answer. Circle or box in the final answer.\*\*

10. Use the relation  $\{(2, 2), (-3, -2), (4, 0), (0, 2), (-3, 3), (1, -1)\}$ .

A. Graph the relation.

B. State its domain and range.

C. Is the relation a function?



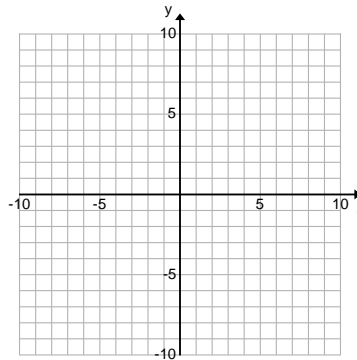
11. Use the function  $y = -2x + 1$ .

A. Complete the input-output table.

B. Graph the function.

C. Find the value of the function when  $x = -32$ .

Input (x)	Output (y)
-3	
-2	
-1	
0	
1	
2	
3	



12. Use the input-output tables to answer the questions that follow.

A. Does the data in the table represent a function?

B. Does the data in the table represent a function?

If yes, describe the domain and range.

If yes, describe the domain and range.

x	y
0	5
5	8
0	1
2	3

x	y
0	9
4	4
6	3
8	3

13. Use function notation to write the following: “ $f$  of  $x$  is 2 less than 5 times a number.”

14. Find the common difference for the arithmetic sequence whose formula is  $f(n) = 6n + 3$ .

15. Find the 10<sup>th</sup> term of the sequence 3, 5, 7, 9,...



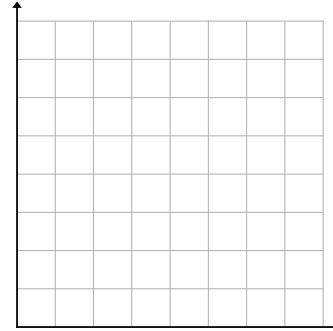
16. A taxi-cab company charges \$5 per trip plus \$.45 per mile.

A. Write a linear equation for the cost  $C$  of a cab ride  $m$  miles long.

B. Complete the input-output table.

# of Miles ( $m$ )	Cost ( $C$ )
5	
10	
15	
20	
25	
30	
35	

C. Graph the function. Label the axes.



D. Calculate how much it would cost for a 43-mile cab ride.

17. Find the recursive and explicit formulas for the following arithmetic sequence:  $-7, -4, -1, 2, \dots$

18. Find the number of terms in the sequence  $7, 10, 13, \dots, 55$ .

Multiple Choice: **Circle the best answer.**

19. Which of the following tables represent functions?

I.	II.	III.	IV.																																								
<table border="1" style="margin: auto;"> <thead> <tr><th>Input</th><th>Output</th></tr> </thead> <tbody> <tr><td>1</td><td>4</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>3</td><td>2</td></tr> <tr><td>4</td><td>1</td></tr> </tbody> </table>	Input	Output	1	4	2	3	3	2	4	1	<table border="1" style="margin: auto;"> <thead> <tr><th>Input</th><th>Output</th></tr> </thead> <tbody> <tr><td>1</td><td>1</td></tr> <tr><td>2</td><td>2</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td>3</td><td>4</td></tr> </tbody> </table>	Input	Output	1	1	2	2	3	3	3	4	<table border="1" style="margin: auto;"> <thead> <tr><th>Input</th><th>Output</th></tr> </thead> <tbody> <tr><td>-1</td><td>2</td></tr> <tr><td>0</td><td>2</td></tr> <tr><td>1</td><td>3</td></tr> <tr><td>5</td><td>3</td></tr> </tbody> </table>	Input	Output	-1	2	0	2	1	3	5	3	<table border="1" style="margin: auto;"> <thead> <tr><th>Input</th><th>Output</th></tr> </thead> <tbody> <tr><td>-4</td><td>3</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>12</td></tr> <tr><td>4</td><td>7</td></tr> </tbody> </table>	Input	Output	-4	3	0	1	2	12	4	7
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- A. II only
- B. I and IV only
- C. III and IV only
- D. I, III, and IV only



20. Which input-output table represents the function  $f(x) = 5x - 4$ ?

A. 

Input	Output
2	-10
3	-5
6	10
8	20

B. 

Input	Output
2	6
3	11
6	16
8	21

C. 

Input	Output
2	6
3	11
6	26
8	36

D. 

Input	Output
2	14
3	19
6	34
8	44

21. Translate the table into words:

<b>Input</b>	3	4	5	6	7
<b>Output</b>	5	7	9	11	13

- A. The output is four less than triple the input.
- B. The output is one less than double the input.
- C. The output is one greater than double the input.
- D. The output is two greater than the input.

22. Write an equation for the  $n^{\text{th}}$  term of -6, -14.5, -23, -31.5, ...

- A.  $a_n = -6n$
- B.  $a_n = -8.5n - 7$
- C.  $a_n = -14.5n + 8.5$
- D.  $a_n = -8.5n + 2.5$



23. The table shows the predicted growth of a particular bacteria after various numbers of hours. Write an explicit formula for the sequence of the number of bacteria.

Hours ( $n$ )	1	2	3	4	5
Number of Bacteria	19	38	57	76	95

- A.  $f(n) = 19n + 19$                       B.  $f(n) = n + 19$   
C.  $f(n) = 19n$                               D.  $f(n) = \frac{1}{19}n$
24. What is the first term in the arithmetic sequence \_\_\_\_\_, 9, \_\_\_\_\_, 33, 45 ?
- A. -3    B. -1  
C. 3    D. 6
25. Which of the following is not an arithmetic sequence?
- A. 11, 2, -8, -19, ...                      B. 4, 7, 10, 13, ...  
C. 57, 51, 45, 39, ...                      D. -3, -5, -7, -9, ...