

Algebra 1
Classwork/Homework – Functions

Name: _____
 Date: _____

Determine if the following relations are functions. Describe the domain and range.

1. $\{(5, -1), (0, 3), (-2, -4), (6, -1), (-2, 3)\}$

Function? _____ Domain: _____ Range: _____

2. $\{(9, 2), (-4, -1), (0, -3), (-7, 6), (5, -2)\}$

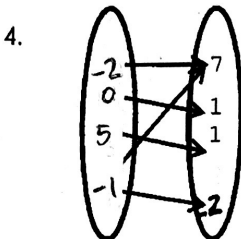
Function? _____ Domain: _____ Range: _____

Determine if the following tables and mappings are functions. Describe the domain and range.

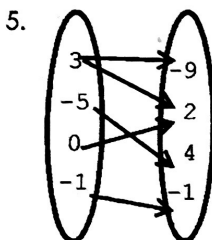
3.

x	y
3	9
8	24
-2	-6
0	0

Function? _____
 Domain: _____
 Range: _____



Function? _____
 Domain: _____
 Range: _____



Function? _____
 Domain: _____
 Range: _____

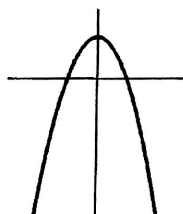
6.

x	y
-6	8
2	3
-6	-11
4	-2

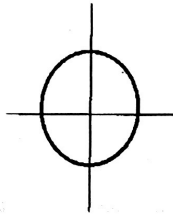
Function? _____
 Domain: _____
 Range: _____

Determine if the following graphs are functions. Use the vertical line test.

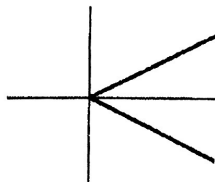
7. Function? _____



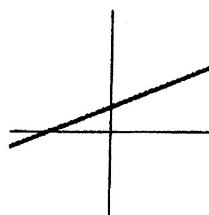
8. Function? _____



9. Function? _____



10. Function? _____

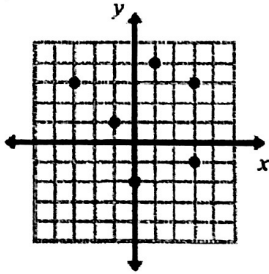


Function Notation and Evaluating Functions Practice Worksheet B

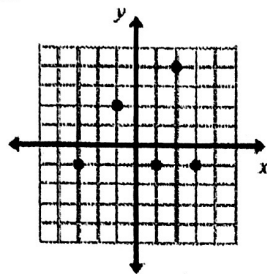
Name _____ Class Period _____

Decide whether the graph represents y as a function of x . If it is a function, give the domain and range.

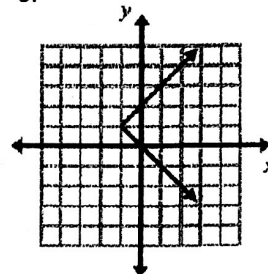
1.



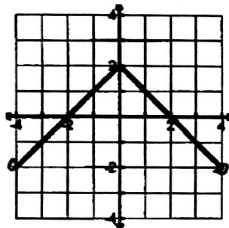
2.



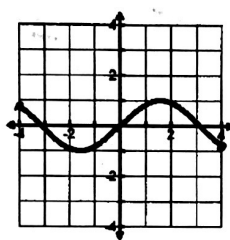
3.



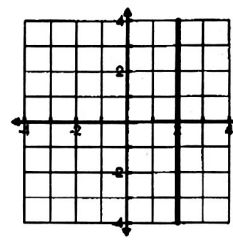
4.



5.



6.



Decide whether the relation is a function.

If it is a function, give the domain and the range.

7.

Input	Output
1	7
1	-7
2	8
2	-8

8.

Input	Output
3	2
5	4
7	6

9.

Input	Output
0	-6
2	-4
4	-2
6	0

Evaluate the function when $x = 3$, $x = 0$, and $x = -2$. (3 answers for each problem)

10. $f(x) = 2x - 5$

11. $h(x) = 6x + 2$

12. $g(x) = 2.4x$

COAL
Guided Notes – Characteristics of Linear Functions Day 2

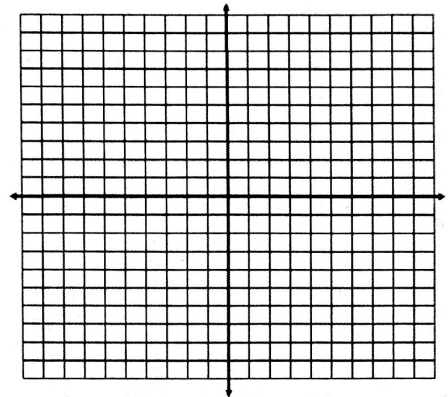
Name _____

Date _____

WARM-UP: Graph the line!

Example: $y = 4x - 9$

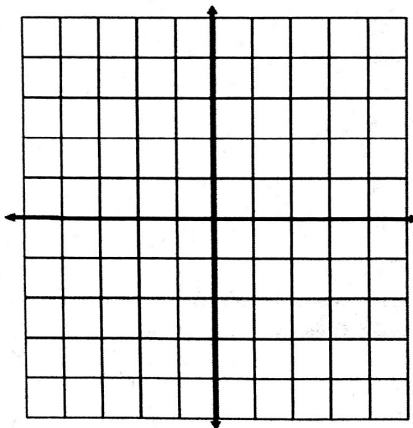
1. Plot the y-intercept
2. From there, RISE & RUN
3. Draw line



Match the characteristics of linear functions:

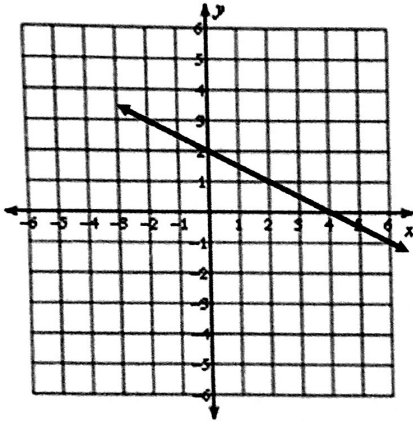
- | | | |
|-------|---|------------------------|
| _____ | - the slope of a function | A. Domain |
| _____ | - the set of <u>x-values</u> for a function | B. Decreasing Interval |
| _____ | - the set of <u>y-values</u> for a function | C. Range |
| _____ | - the interval where the graph rises and the <u>y-values increase</u> | D. X-Intercept |
| _____ | - the interval where the graph falls and the <u>y-values decrease</u> | E. Increasing Interval |
| _____ | - the point(s) where a graph <u>crosses the x-axis</u> | F. End Behavior |
| _____ | - the point(s) where a graph <u>crosses the y-axis</u> | G. Y-Intercept |
| _____ | - the behavior of the graph as x approaches positive infinity (up) or negative infinity (down).
<i>(the behavior of the ends of the graph)</i> | H. Rate of Change |

1. Graph
 $-2x - y = 1$



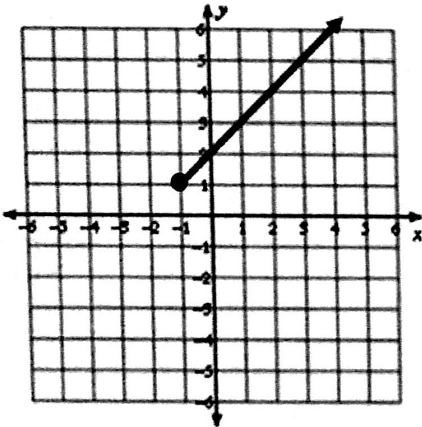
Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	
Right End Behavior	

2.



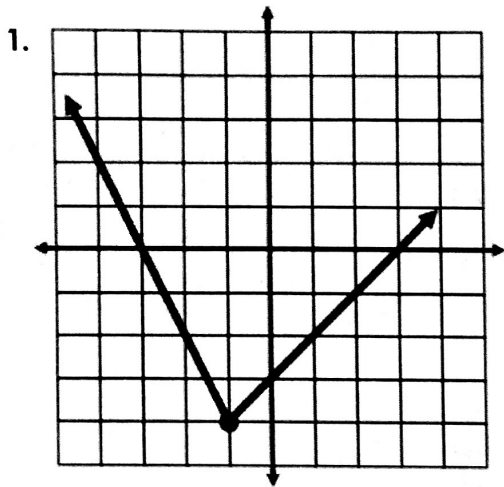
Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	
Right End Behavior	

3.

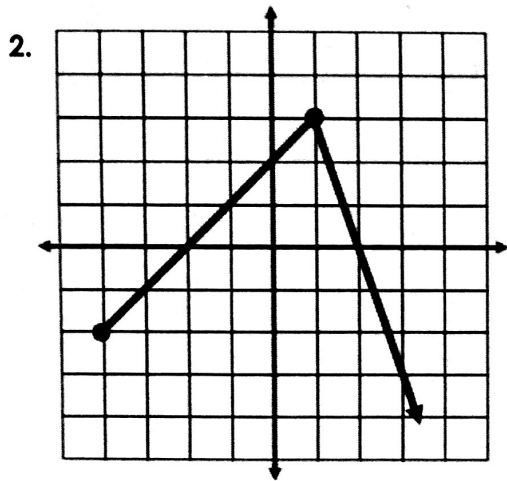


Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	\times
Right End Behavior	

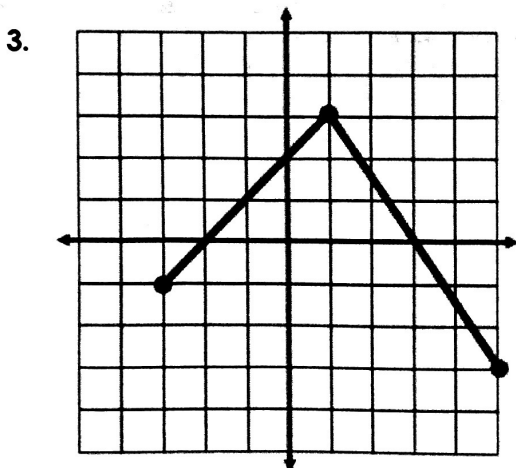
What if our graph has more than one "piece?!"



Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	
Right End Behavior	

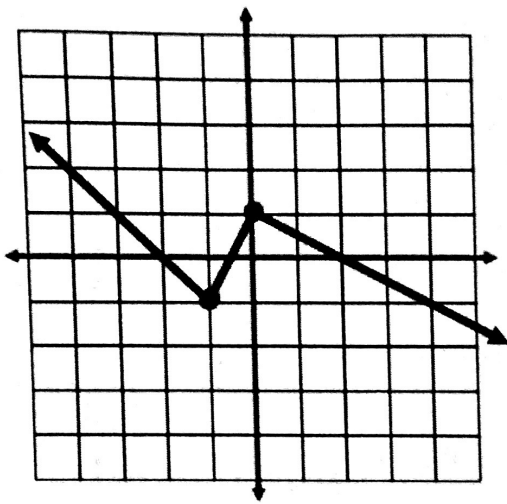


Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	X
Right End Behavior	



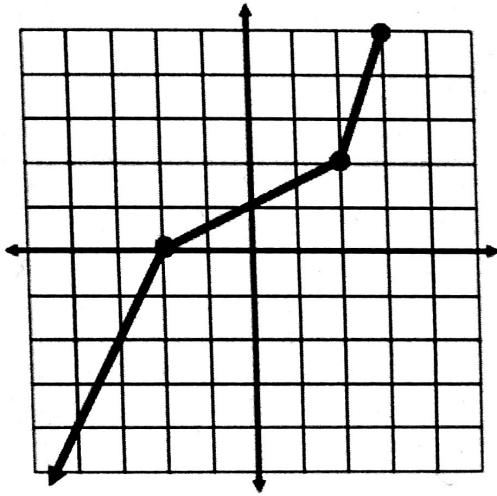
Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	X
Right End Behavior	X

4.



Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	
Right End Behavior	

5.

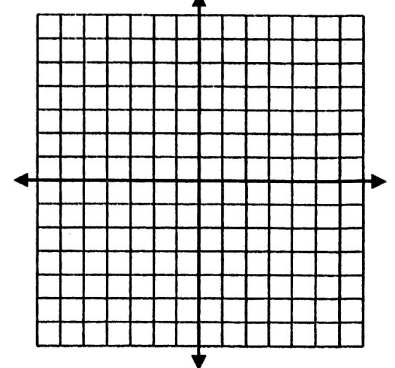
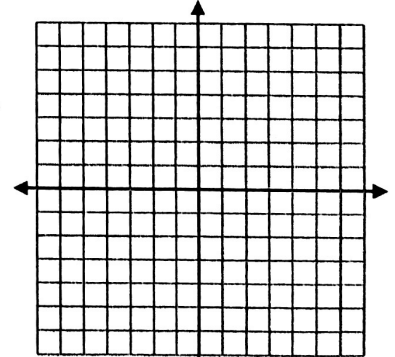
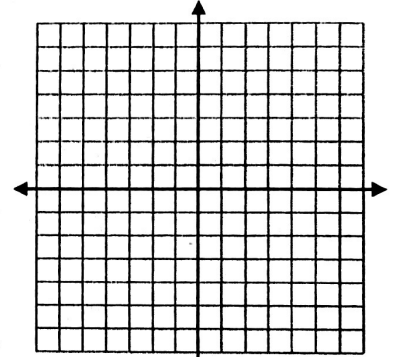
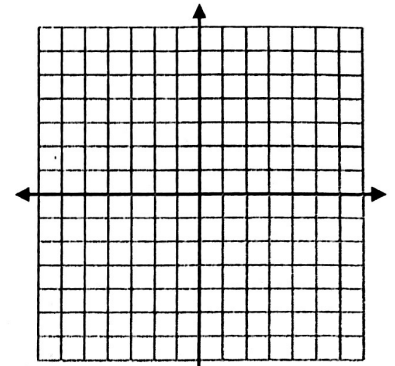


Characteristic	Answer
Rate of Change	
Domain	
Range	
Increasing Interval	
Decreasing Interval	
x-intercept	
y-intercept	
Left End Behavior	
Right End Behavior	X

FINDING SLOPE #1 (Graphing method)

Graph the points and find slope using $m = \frac{\text{rise}}{\text{run}}$

1. Plot the points (0, 2) and (4, 3) and find slope.
2. Plot the points (0, -3) and (2, 1) and find the slope.
3. Plot the points (0, -1) and (1, 4) and find the slope.
4. Plot the points (0, 3) and (4, 1) and find the slope.
5. Plot the points (0, 1) and (1, -3) and find the slope.
6. Plot the points (0, -3) and (3, -1) and find the slope.
7. Plot the point (0, -2) and (1, 2) and find the slope.
8. Plot the point (0, 4) and (2, -6) and find the slope.



Finding Slope from Tables

Homework

Name _____

Date _____ Period _____

Determine the slope of the line represented by the table of values. Describe the graphs of the line as increasing, decreasing, horizontal, or vertical. Copy one of these tables on the back of this page and write a situation that describes the data.

1.

x	y
-2	3
-1	5
0	7
1	9
2	11

m =

Graph Description

2.

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

m =

Graph Description

3.

x	y
1	-17
2	-13
3	-9
4	-5
5	-1

m =

Graph Description

4.

x	y
-6	-4
-5	-9
-4	-14
-3	-19
-2	-24

m =

Graph Description

5.

x	y
0	3
1	5.5
2	8
3	10.5
4	13

m =

Graph Description

6.

x	y
-2	5
-1	4.75
0	4.5
1	4.25
2	4

m =

Graph Description

7.

x	y
-2	$\frac{2}{5}$
-1	$\frac{4}{5}$
0	$\frac{6}{5}$
1	$\frac{8}{5}$

m =

Graph Description

8.

x	y
-1	1
1	2
3	3
5	4
7	5

m =

Graph Description

9.

x	y
-5	10
-2	5
1	0
4	-5
7	-10

m =

Graph Description

10.

x	y
-5	10
-3	6
-1	2
1	-2
3	-6

m =

Graph Description

11.

x	y
-4	6
-2	6
0	6
2	6
4	6

m =

Graph Description

12.

x	y
5	2
5	4
5	6
5	8
5	10

m =

Graph Description

Algebra 1
Skills Practice- Function Notation

Name: _____ Date: _____ Period: _____

Sample problem: Given the function $f(x) = -3x + 7$, find

a. $f(-5)$

$$f(-5) = -3(-5) + 7$$

$$= 15 + 7 = \boxed{22}$$

b. the value of x for which $f(x) = -5$

$$-3x + 7 = -5$$

$$\underline{-7 \quad -7}$$

$$-3x = -12$$

$$\underline{\div -3 \quad \div -3}$$

$$x = \boxed{4}$$

Part 1: Use $f(x) = \frac{x-1}{4}$, $g(x) = 5 - 2x$, and $h(x) = x^2 + 2x$ to answer each question.

1. $f(17)$

2. $g(4)$

3. $h(2)$

4. $f(x) = -6$

5. $h(-3)$

6. $g(x) = 11$

7. $f(x) = 9$

8. $g(x) = -17$

9. $f(2)$

*10. $f(x) + g(1)$

Part 2: Use the graph of $y = f(x)$ to answer each question.

11. $f(1)$

12. $f(-1)$

13. $f(x) = 1$

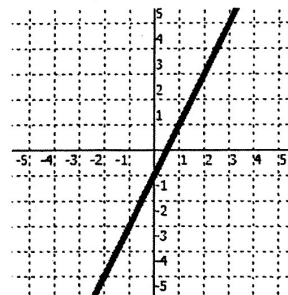
14. $f(x) = -1$

15. $f(3)$

16. $f(0)$

17. $f(x) = 3$

18. $f(x) = 0$



Part 3: Use the chart to answer each question.

x	-3	-2	0	1	4	5	7	10
$f(x)$	4	0	6	2	-2	10	0	-3

19. $f(1)$

20. $f(-2)$

21. $f(x) = -2$

22. $f(x) = 4$

23. $f(10)$

24. $f(0)$

25. $f(x) = 10$

26. $f(x) = 0$

27. $f(-3)$

28. $f(x) = -3$

Name: _____

Evaluating Linear Functions

ES1

A) Evaluate each function at the specified value.

1) $f(x) = 7x - 5$; $x = 6$

2) $f(x) = 9x + 3$; $x = -10$

B) Evaluate each function.

1) $f(x) = -8x - 9$; find $f(-3)$

2) $f(x) = 4x$; find $f(-15)$

C) If $f(x) = 3(-2x + 7)$; find the following.

1) $f(-7) =$ _____

2) $f(13) =$ _____

3) $f(11) =$ _____

4) $f(-8) =$ _____

D) If $f(x) = -x - 11$; find the following.

1) $4f(-2) + 5f(1) =$ _____

2) $3f(5) \times f(2) =$ _____

3) $-5f(12) - 2f(-9) =$ _____

4) $\frac{f(9)}{f(-6)} =$ _____

E) What is the value of $f(4)$, if $f(x) = -4(x + 3) - 14$?

Name the first five terms of each arithmetic sequence described.

1. $a_1 = 4, d = 3$ 1. _____
2. $a_1 = 7, d = 5$ 2. _____
3. $a_1 = 16, d = -2$ 3. _____
4. $a_1 = 38, d = -4$ 4. _____
5. $a_1 = \frac{3}{4}, d = -\frac{1}{4}$ 5. _____

Name the next four terms of each arithmetic sequence.

6. 5, 9, 13, ... 6. _____
7. 2, -3, -8, ... 7. _____
8. 21, 15, 9, ... 8. _____
9. $\frac{1}{2}, \frac{3}{2}, \frac{5}{2}, \dots$ 9. _____

Find the n^{th} term of each arithmetic sequence.

10. $a_1 = -1, d = -10, n = 25$ 10. _____
11. $a_1 = -3, d = -9, n = 11$ 11. _____
12. $a_1 = -7, d = 3, n = 17$ 12. _____
13. $a_1 = 2, d = \frac{1}{2}, n = 8$ 13. _____

Complete each statement.

14. 124 is the _____th term of -2, 5, 12, ... 14. _____
15. -28 is the _____th term of 7, 2, -3, ... 15. _____
16. $-\frac{17}{4}$ is the _____th term of $2\frac{1}{4}, 2, 1\frac{3}{4}, \dots$ 16. _____

Explicit:

$$a_n = a_1 + d(n-1)$$

Algebra 2

Assignment

Find the explicit formula and the recursive formula.

1) -40, -36, -32, -28, ...

2) 24, 124, 224, 324, ...

3) -31, 69, 169, 269, ...

4) 40, 46, 52, 58, ...

5) -24, -15, -6, 3, ...

6) 11, -89, -189, -289, ...

7) 31, 11, -9, -29, ...

8) 16, 26, 36, 46, ...

9) -16, -23, -30, -37, ...

10) 26, 35, 44, 53, ...

11) -14, -10, -6, -2, ...

12) 4, -3, -10, -17, ...

13) -6, 4, 14, 24, ...

14) 16, -184, -384, -584, ...

Recursive:

$$a_n = a_{n-1} + d$$

ID: 1

Name _____

Date _____ Period _____