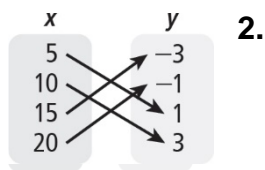**Algebra 1**
Chapter 3 Practice Test

Name: _____ **Per:** _____

1. Which relation is a function? Choose all that apply

    A (1, 0), (3, 0), (1, 0), (2, 1) (4, 3)

    B (1, 1), (2, 2), (3, 3), (4, 4), (5, 8)

    C (2, 7), (6, 5), (4, 4), (3, 3), (2, 1)

    D (9, −3), (9, 3), (4, −2), (4, 2), (0, 0)

_____

For 2-3: Identify the domain and range of the relation, state whether it is a function and determine whether it is 1-to-1.

2.

x	y
5	−3
10	−1
15	1
20	3

3.

x	y
0	1
2	2
4	4
6	7

_____

4. Jack works after school. Each day he earns a set amount, plus an hourly wage. Write a linear function f Jack can use to determine his pay.
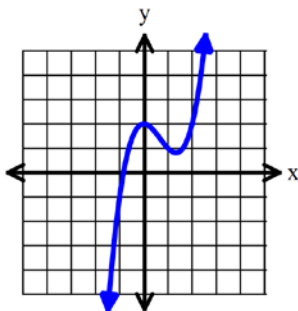
Hours	1	2	3	4	5
Pay	18	28	38	48	58

_____

For #5-6, determine if the relation is a function. If so, determine the domain and range.

5.

6.

x	−4	−9	−4	16	13
y	6	15	5	7	7

_____

7. If $f(x) = 2x - 1$, describe the transformations that would result in $g(x) = (2x - 1) - 4$

_____

8. Which of the following is an arithmetic sequence?

    A   −2, −5, −8, −11, −14, −17, …

    B   0, 5, 0, 10, 0, 15, …

    C   2, 4, 8, 16, 32, …

    D   5, 11, 17, 23, 29, 36, …

9. Write an explicit and a recursive formula for the given sequence.

    $301, 323, 345, 367, 389, \ldots$

_____

10. Each day, Yumiko exercises by first doing sit-ups and then running. Make a scatter plot of the total time she exercises as a function of the distance she runs. Draw a trend line.

Distance (mi)	1	2	3
Time (min)	15	25	39

_____

11. What type of correlation does the scatter plot in Item 10 show?

A   positive

B   negative

D   cannot tell

C   none

_____

12. Which of the following equations is the best trend line for the data in Item 10?

A $y = 5x - 13$

B $y = 12x + 3$

C $y = -5x + 3$

D $y = 12x - 13$

13. What does the *y*-intercept of the line in Item 10 represent?

A   time spent doing sit-ups

B   average time spent running

C   total time spent running

D   average distance run

_____

14. In Item 10, estimate the time it will take Yumiko to run 4 mi.

estimate: about _____ min

_____

15. Given the recursive formula write the explicit formula and simplify.

$$a_1 = 13;\ a_n = a_{n-1} + 3$$

_____

16. Given the explicit formula write the recursive formula.

$$a_n = -2 + 5n$$

_____

For 17-19: Given $f(x) = -6x + 2$, find each value.

17. $f(3)$ **18.** $f(-1)$ **19.** $f(0)$

20. The functions *f(x)* and *g(x)* are shown below. Calculate the average rate of change for each function over the interval from x=2 to x=6.

$f(x)$	$g(x)$

x	1	2	3	4	5	6	7
$f(x)$	1	2	4	8	16	32	64