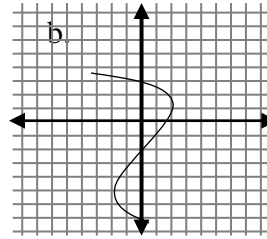Adv Math 1 Chapter 3 Test Review

1. Determine if each relation is a function (yes or no). If the relation is a function, determine if it is a one-to-one function.

  a. $\{(6, 9),\ (8, 10),\ (11, 14),\ (13, 10),\ (2, 4)\}$

     Function? _____

     One-to-one? _____

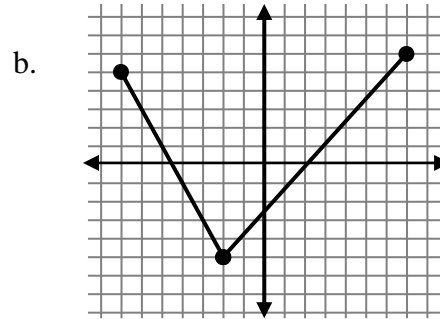 b.

     Function? _____

     One-to-one? _____

2. Determine the domain and range of each function:

  a. $\{(-4, 1),\ (2, 5),\ (3, 7),\ (6, 8),\ (9, -3)\}$

     Domain: _____

     Range: _____

  b.

     Domain: _____

     Range: _____

Find the value of each function:

3. $f(x) = -7x + 3$

   Find $f(-4)$

4. $f(x) = 2(x - 4) + 11$

   Find $f(5)$

Tell how _g(x)_ is transformed from _f(x)_.

5. $f(x) = 7x$
   $g(x) = 7(x + 2) + 6$

6. $f(x) = 6x + 2$
   $g(x) = \frac{4}{3}(6x) + 2$

Find a linear function for each:

7.

x	−4	−1	2	5
y	−15	−6	3	12

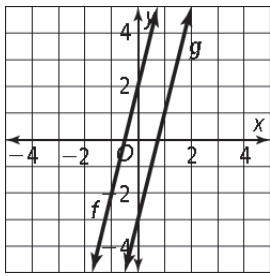   Find a linear function for y in terms of x.

8. A plane is currently 840 miles from base and flies 120miles each hour toward base. Write function **D** for the plane's distance from base after _h_ hours.

9. State a reasonable domain and range for #8:

   Domain:

   Range:

10. Given $g(x) = f(x) + k$, identify a value of k that transforms f into g.

$k =$ _____

11. For each sequence, determine if it is an arithmetic sequence. If yes, find the common difference.

   a. 17, 20, 23, 26 . . .   arithmetic? _____   If yes, common difference = _____

   b. –25, –16, –7, 3, 12   arithmetic? _____   If yes, common difference = _____

Find an explicit and recursive formula for each arithmetic sequence:

12.   15, 21, 27, 33, . . .   13. 4, –1, –6, –11, . . .

   Explicit: _____   Explicit: _____

   Recursive: _____   Recursive: _____

   _____   _____

14. Given an arithmetic sequence with the   15. Given an arithmetic sequence with the

   Explicit formula $a_n = 8 + (n-1)2$ recursive formula $a_1 = 3$ and $a_n = a_{n-1} - 4$

   Find the recursive formula: Find the explicit formula:

   Recursive: _____   Explicit: _____

   _____

16. Given the arithmetic sequence: 17. A typing service charges $30 for one page of

   17, 23, 29, 35, . . .   typing, $36 for two pages, and $42 for three pages.

   Find the explicit formula: Find an explicit formula of the total charge for n pages.

_____   _____

   Use the formula to find the 32$^{\text{st}}$ term   How much would the service charge

   $a_{32} =$ _____   for 17 pages of typing?

18. Which r-value suggests the strongest correlation?

a) r = 0.9684   b) r = –0.1754   c) r = 0.1845   d) r = –0.9864

19. The data in the left table has a trend line of y = 3x + 5. Fill in the right table with the residuals based on the trend line.
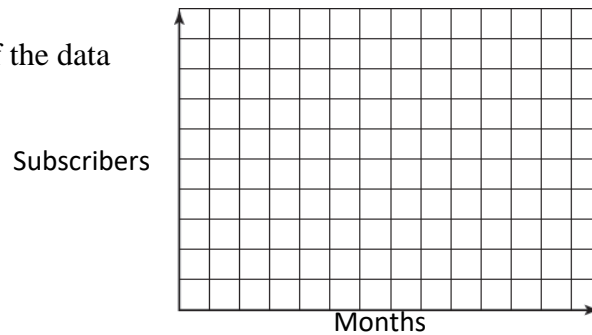
x	1	2	3	4
y	10	14	11	20

x	1	2	3	4
Residual				

20. Olivia started a rabbit farm with 10 rabbits. Each month she recorded how many rabbits she had. Her results are shown in the table.

Months	Subscribers
0	10
1	16
2	28
3	32
4	42
5	51

a) Make a scatterplot of the data and draw in the line of best fit.

Subscribers

Months

b) Write an equation for the line of best fit. Estimate the number of rabbits in 12 months. Demonstrate or explain how you arrived at that number.

21. Find the equation of the line in slope-intercept form that passes through the points (5, –3) and (9, 7).

22. Solve: $3|4x + 2| - 7 < 13$