Applied Algebra Day 7 Blizzard Bag

Complete all problems, showing all of your work.

1) Which data set has a domain of 0, 1, 2, 4?

a)

x	y
1	–3
–1	4
0	2
–5	–8

b)

x	y
–2	2
–1	1
0	0
–4	4

c)

x	y
–4	–3
–2	–1
–1	0
0	1

d)

x	y
0	1
1	2
2	4
4	8

2) Consider the graph of $y = 2x + b$. If the constant, b, is decreased by 2, in which direction will the graph shift?

a) up b) down c) left d) right

3) Gaspar's Internet provider charges $0.04 per minute each month for web service plus a monthly flat fee for a modem. If Gaspar paid $67 last month and used 1,500 minutes of web service, how much does the modem cost per month?

4) Simplify $10z – 4 + 8(z – 1)$.

5) The verbal expression "the difference between three times a number x and 12, increased by the quotient of 5 and the number x" can be written how?

6) Below is a list of coordinate pairs with the variable x listed in the place of one of the domain values.

$$\{(2, 6), (x, 6), (5, 7), (6, 8), (8, 9)\}$$

Which value of x will make the relation above a function?

a) 3 b) 5 c) 6 d) 8

7) Roger has a lawn care business and charges a flat fee of $20 plus x dollars per hour to mow yards. It takes Roger 3 hours to mow one yard, 2 hours to mow a second yard, 1 hour to mow a third yard, and 4 hours to mow a fourth yard.
a) Write four different expressions, each expression representing Roger's charge for one of the yards.

b) Using the four different expressions from part a, write an expression that represents the sum of the charges for the four different yards. Show your work.

c) If Roger earns $175 mowing the four yards, how much does he charge per hour?

8) If $3b + 12 = 5(b - 4)$, find b.

9) The function $f(C) = \frac{9}{5}C + 32$ is used to convert the temperature from degrees Celsius to degrees Fahrenheit. If the temperature is currently -4° Celsius, what is the temperature in degrees Fahrenheit?

10) Which pattern of numbers can be produced by the formula $a_n = 3n + 4$?

a) {3, 10, 17, 24}
b) {4, 8, 12, 16}
c) {7, 10, 13, 16}
d) {7, 11, 15, 19}

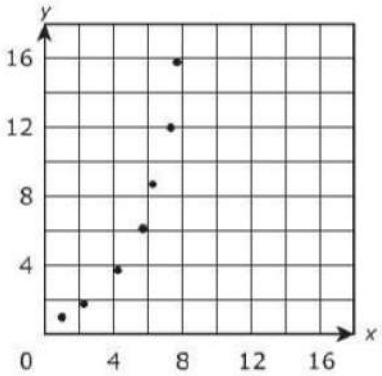
11) The cost of production, C, of producing x number of electronic goods in one year is modeled by the equation C = 145x + 1250. What does the slope in this situation represent?

a) the cost of production per unit
b) the number of units produced
c) the total cost of production
d) the initial setup cost

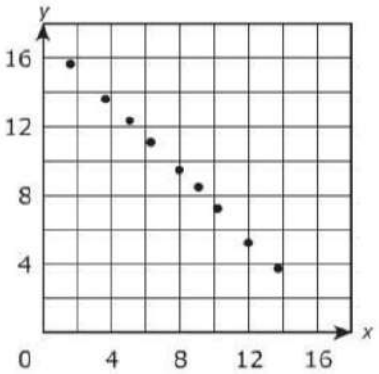
12) On a science test, Susan's score was 12 more than two times Jennifer's score. The sum of Susan and Jennifer's scores is 78. How much did Jennifer score?

13) Which graph shows a positive linear relationship between the variables x and y?

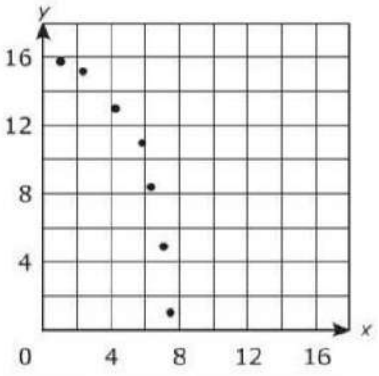
a)



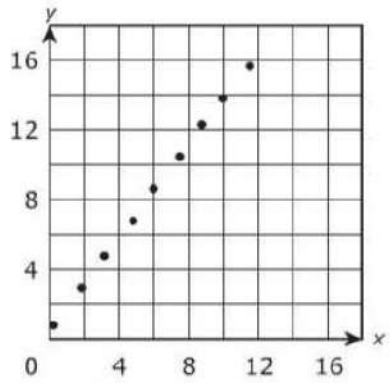
b)



c)



d)



14) State the domain and range of the relation below.
{(1, -2), (4, 5), (2, -4), (6, 5), (2, 2)}

15) The table at right shows the amount, A, earned by John for tutoring h hours. On a particular week, he tutored for 15 hours. How much did he earn that week?

Amount Earned Tutoring

Hours, *h*	Amount earned, *A*
1	$12
3	$36
7	$84
10	$120

16) Subtract $(y^3 + 5y^2 - 3y) - (2y^2 - 4y + 1)$.