Name _____ Per _____ Date _____

Algebra: Review for Nine Weeks Exam

Slope-intercept form	$y = mx + b$
Standard Form	$Ax + By = C$
Point-slope form	$y - y_1 = m(x - x_1)$
Slope formula	$m = \frac{y_2 - y_1}{x_2 - x_1}$

1. A customer pays $140 for an annual membership fee to a neighborhood car wash. Each time the customer takes the car for a wash, the customer only pays $5 for a wash.

   a. This function is expressed as the equation y = _____.

   b. What do each of these represent in the problem situation?

   X variable:

   Y: variable:

   Slope:

   y-intercept:

2. What does the word "zero" mean?

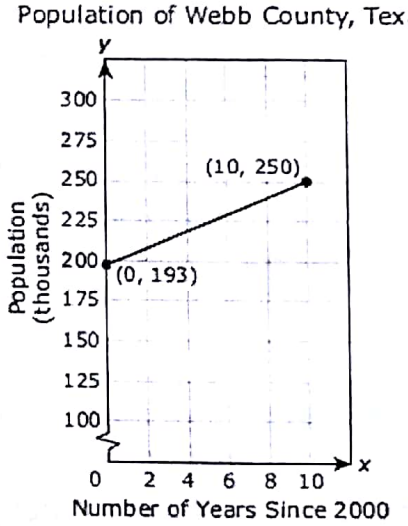
3. The graph below represents the population of Webb County since the year 2000.

   a. What is the y-intercept and what does this represent?

   b. What is the rate of change (slope)?

   c. What is the equation of this line? (the year 2000 is the beginning value where x=0)

   d. If this trend continues, then what will be the population in the year 2030?



4. The number of calories burned is a function of the number of hours you work out.

   What are the
   a. independent and

   b. dependent variable in this situation?

5. A line passes through the point (-4, 8) and has a slope of (1/4). Which of the following is an equivalent equation this situation?

A. $y + 4 = \frac{1}{4}(x - 8)$
B. $y = \frac{1}{4}x + 9$
C. $x + 4y = 9$
D. $2x + y = 10$

6. Find the x and y intercepts of

$-3x + 4y = -24$

(Hint: Remember you must substitute the number _____ in place of "y" to find the x-intercept.)

x-intercept: _____

y-intercept: _____

7. Solve for y. $-2x + 3y > 5y + 9$

8. Lines that are parallel must have the _____ slope. Lines that are perpendicular must have slopes that are negative _____ of each other.

9. Write an equation of the line that passes through (-3, -5) and is parallel to the line $y = 3x - 1$.

10. Write an equation of a line that passes through (4,3) and is perpendicular to the line $y = 4x - 7$.

11. A line passes through two points (-2,7) and (6,1). Using a method of your choice (point-slope form, lists and spreadsheets, etc) find the y-intercept of the line that passes through these two points.

12. A line is expressed as $y + 3 = -3(x - 7)$

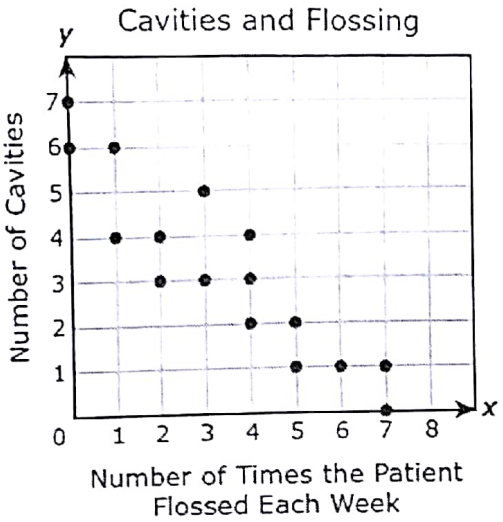
a. What is the slope of the line? (Hint: This is written is point-slope form)

b. What is the point that is given that passes through the line?

13. Determine which lines, if any, are parallel or perpendicular.

Line a: $y = 5x - 3$
Line b: $x + 5y = 2$
Line c: $-10y - 2x = 0$

Use the following scatterplot to answer 14 – 16.



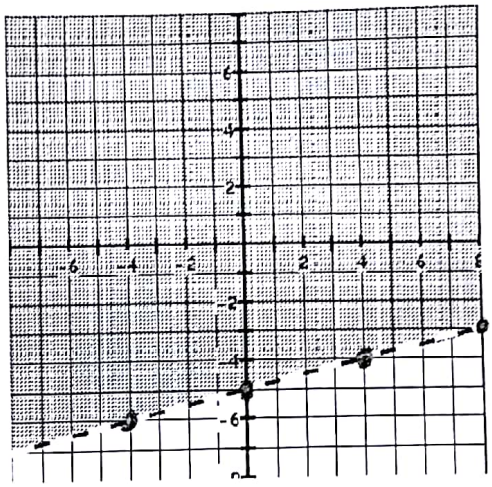
14. This is an example of a _____ correlation because as the number of times the patient flosses increases the number of cavities _____.

15. What is the equation of the line of best fit? (There are a total of 16 data points.)

16. What is the value of the correlation coefficient? r = _____. This means that the data represents a _____ negative correlation.

17. Write an equation of a line that passes through (-2, 11) and is parallel to the line $y = -x + 5$.

18. Write the inequality to match the graph below.



19. Use the data below to answer the following questions.

X	2	5	9	12	14
y	18	29	42	51	60

a. This is an example of (weak/strong) correlation because the correlation coefficient "r" is equal to _____.

b. The equation to the line of best fit (regression line) is

Y = _____