Algebra 1: 3.1 - 3.2 Quiz Review   Name _____ Period _____

Choose the term that best completes each sentence.

Linear Regression	Correlation Coefficient	Line of Best Fit

1. Another name for the trend line drawn on a scatter plot is the _____.

2. _____ models the relationship between two variables in a data set by producing a line of best fit.

3. _____ indicates how closely data points are to forming a straight line (uses the letter "r" to represent this).

4. Decide if there is a positive, negative, or no correlation for each graph.
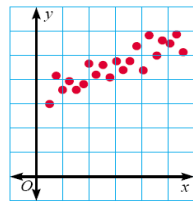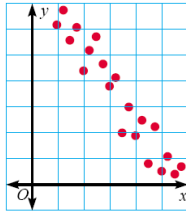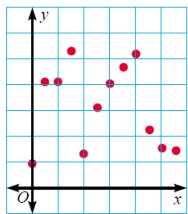
5. The table and graph show the attendance for an annual spring concert at Eva's high school for 6 years starting in 2007 with attendance of 789 people.

A. What is the linear regression equation (line of best fit) for concert attendance? Round your slope and y-intercept to a whole #.

$y_1 \sim mx_1 + b$

STATISTICS   RESIDUALS
$r^2 = 0.79$ e_1 plot
$r = 0.889$

PARAMETERS
$m = 25.171$ $b = 595.04$

x_1	y_1
7	789
8	805
9	773
10	852
11	884
12	902

B. What is the correlation coefficient (r)? Round to two decimal places.

C. Is this line a good representation of the data? Why?

D. Use your equation to predict the attendance for 2016. Note, the table begins at 7 which represents 2007.
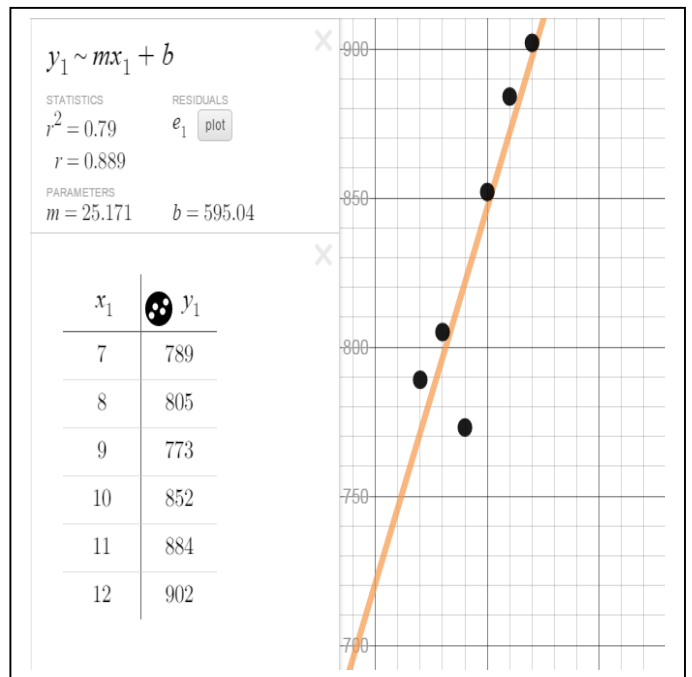
E. Use your equation to predict what year attendance would be about 1400.

6. The table and graph show the shows monthly record sales of a recording artist over 6 months. The table starts in January for month 1 with record sales of $24,980.

$$y_1 \sim mx_1 + b$$

A. What is the linear regression equation for concert attendance? Round your slope and y-intercept to a whole number.

STATISTICS

$r^2 = 0.869$

$r = -0.932$

RESIDUALS

e_1 [plot]

PARAMETERS

$m = -1696.6 \qquad b = 24857$

B. What is the correlation coefficient (r)? Round to two decimal places.

x_1	y_1
1	24980
2	20345
3	18204
4	17899
5	16783
6	15302

C. Is this line a good representation of the data? Why?
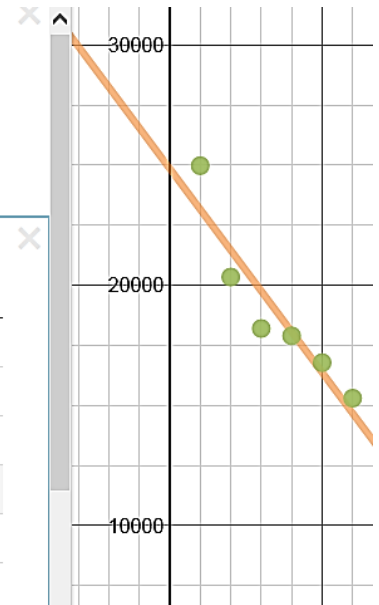
A. Use your equation to predict the record sales for October.

B. Use your equation to predict what month will have record sales of less than 10,000.

7. The Marshall High School Athletic Association sells tickets for the weekly football games. Students pay $5 and adults pay $10 for a ticket.

A. Define your variables and write an expression to represent the situation.

B. How much money would the athletic association collect if 100 students and 50 adults buy tickets to the game?

C. They want to make $10,000 at Friday night's game. Write an equation to represent the situation.

D. If 825 students attend, how many adult tickets need to be sold to reach their goal?

E. If 580 adults attend, how many student tickets will need to be sold to reach their goal?

Determine the x-intercept and y-intercepts of each of the following.
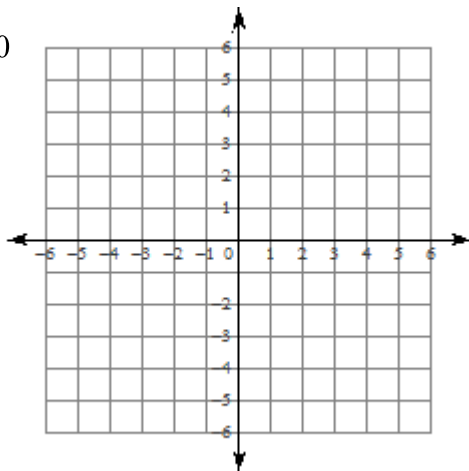
8. $15x + 20y = 300$
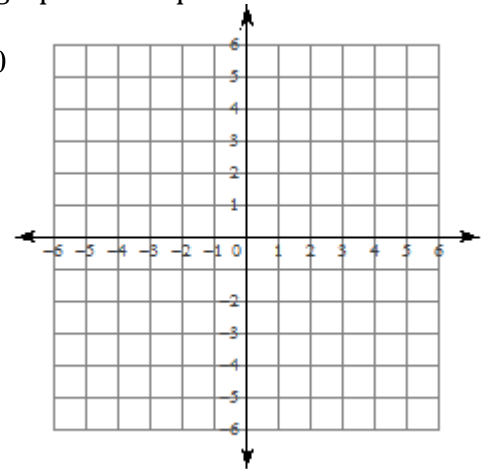
9. $3x + 2y = -8$

10. $3x - y = -3$

11. $x + 4y = 12$

Determine the x-intercept and y-intercept of each of the following. Then, graph each equation.
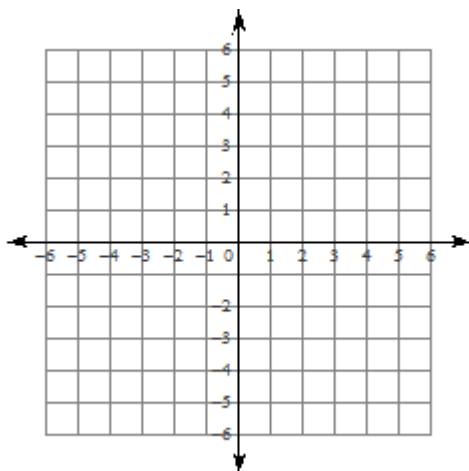
12. $5x - 4y = 20$

13. $5x + 4y = 20$

14. $9x + 5y = -25$

15. $2x = y - 4$