Algebra 1: 3.1 & 3.2 Quiz Review **Name** _____ **Period** _____

Choose the term that best completes each sentence.

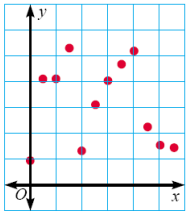
Linear Regression	Correlation Coefficient	Line of Best Fit

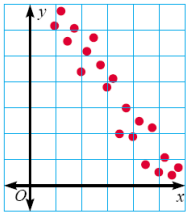
1. The line that best approximates the linear relationship between two variables in a data set is the _____.

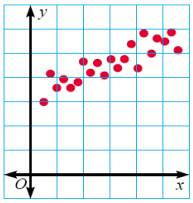
2. _____ models the relationship between two variables in a data set by producing a line of best fit.

3. _____ indicates how closely data points form a straight line (also known as the r-value).

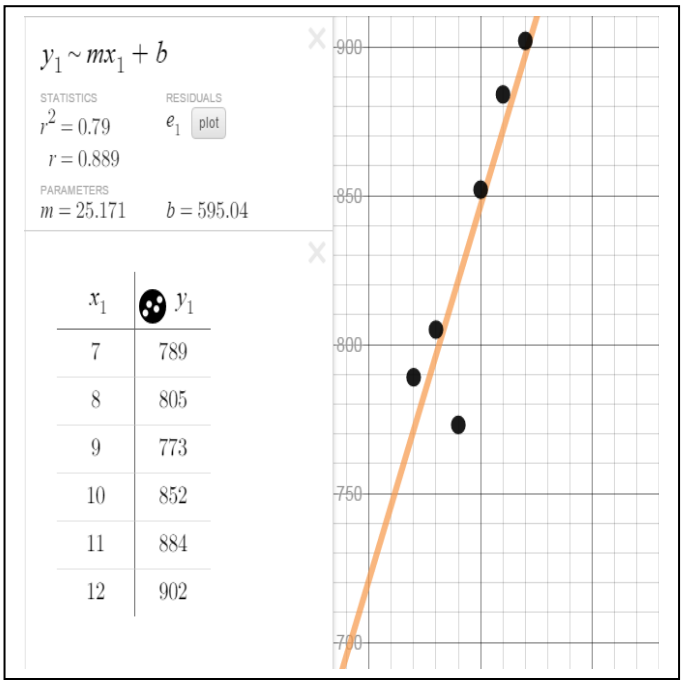
4. For each graph, if the correlation is positive write a "1" beside it. If the correlation is negative, write a "–1" beside the graph. If there is no correlation, write a "0" beside the graph.







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 for concert attendance? Round the slope and y-intercept to a whole number.

B. What is the correlation coefficient?

C. What does this *r*-value tell you about the line of best fit?

D. Use the linear regression equation to predict the attendance for 2016. Hint: the table begins at 7 which represents 2007.

E. Use the linear regression equation to predict what year attendance would be about 1400. Round to a whole number and add 2000 to find the year.

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.

A. What is the linear regression equation for record sales? Round the slope and *y*-intercept to a whole number.

B. What is the correlation coefficient?

C. What does this *r*-value tell you about the line of best fit?

$y_1 \sim mx_1 + b$

STATISTICS

$r^2 = 0.869$

$r = -0.932$

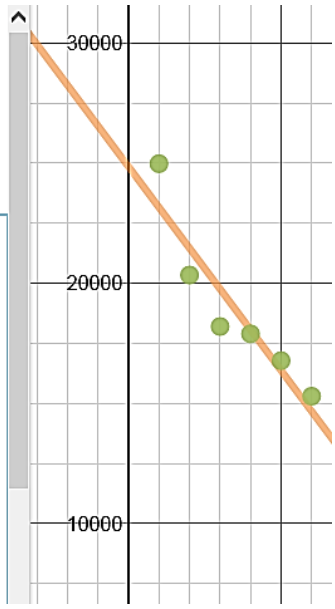
RESIDUALS

e_1 plot

PARAMETERS

$m = -1696.6$ $b = 24857$

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



D. Use the linear regression equation to predict the record sales for October. Hint: use 10 for October.

E. Use the linear regression equation to predict what month will have record sales around 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?

Find the x-intercept and y-intercepts for each equation.

8. $15x+20y=300$

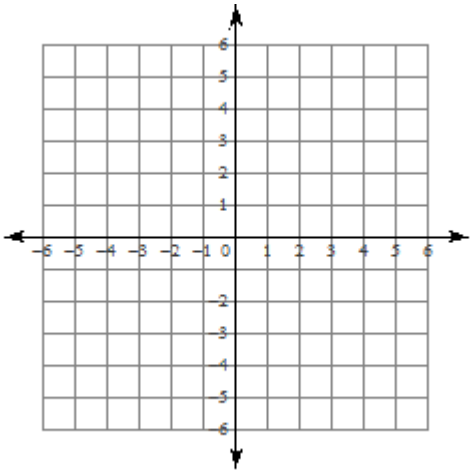
9. $3x+2y=-8$

10. $3x-y=-3$

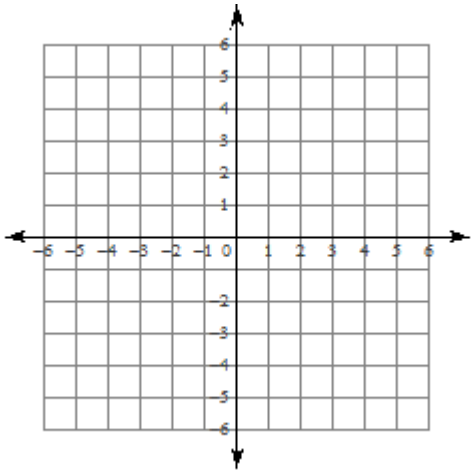
11. $x+4y=12$

Find the x-intercept and y-intercept for each equation. Then, graph each equation.

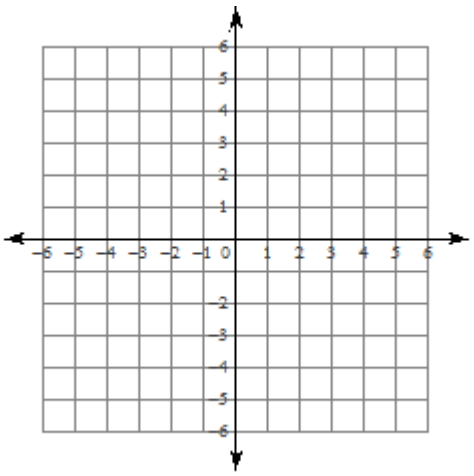
12. $5x-4y=20$



13. $5x+4y=20$



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



15. $2x=y-4$