

# LINEAR REGRESSION WORKSHEET #2



Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

1) Biologists have observed that the chirping rate of crickets of a certain species appears to be related to temperature. The table shows the chirping rates for various temperatures.

Temperature (°F)	Chirping Rate (chirps/min)
50	20
55	46
60	79
65	91
70	113
75	140
80	173
85	198
90	211

a) Plot the data in your calculator. Describe the association of the scatterplot making sure to discuss form, strength and direction.

b) In plain language, what does the scatterplot reveal about the two variables.

c) Find the correlation coefficient using technology and interpret it.

d) Find the regression line using technology. \_\_\_\_\_

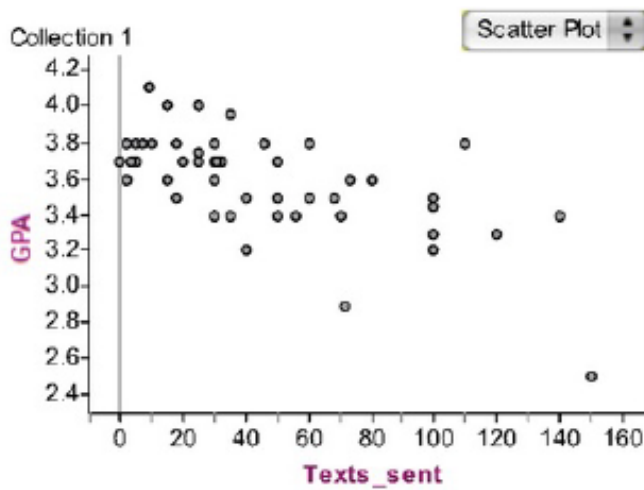
e) Interpret the slope of your model in context.

f) Interpret the y-intercept of your model in context.

g) Graph the residual plot in your calculator. Sketch it below and comment on the appropriateness of the linear model.



3. Jane suspects that there is a relationship between the number of text messages high school students send and their academic achievement. To explore this, she asks each student in a random sample of 52 students from her school how many text messages he or she sent yesterday and what his or her grade point average (GPA) was during the most recent marking period. The data are summarized in the scatter plot of number of text messages sent versus GPA shown below.



- Draw a reasonable trend line and determine the equation of the best fitting line.
- Describe the relationship between number of text messages sent and GPA. Make sure to mention direction, form and strength.
- Interpret the slope and y-intercept of the equation in the context of the problem.