

1. An emergency service wishes to see whether a relationship exists between the high outside temperature on a given day and the number of emergency calls it receives. They examine data from 10 randomly selected days last year. The data is as follows:

<b>Temperature</b>	74	82	88	67	93	99	101	78	85	90
<b>No. of Calls</b>	4	8	10	8	11	14	13	6	8	10

- a) Draw a scatterplot of this data below. Be sure to include labels and scale.
- b) Find the least squares regression line. State the equation below and draw the line on your scatterplot.
- c) Find and interpret the value of  $R^2$ .
- d) Circle the point on your scatterplot which represents the day on which the temperature was 67 degrees. Describe below how this point differs from the rest of the points in the plot.
- e) Remove the point you circled from your calculator (delete both x and y) and calculate the regression line without the 67 degree day. Write the equation below, then draw this new line on your scatterplot in part (a). Label which line is for part (b) and which is for part (e).
- f) Find and interpret the new value of  $R^2$ .

2. The number of passes completed and the total number of passing yards was recorded for NFL quarterback Brett Favre for each of the 16 regular season games in the fall of 2006. The data is shown below:

Completions	15	31	25	22	22	19	17	28	24	5	22	24	22	20	26	21
Yards	170	340	340	205	220	206	180	287	347	73	266	214	293	174	285	285

- a) Draw a scatterplot of this data below. Be sure to include labels and scale.
- b) Find the least squares regression line. State the equation below and draw the line on your scatterplot.
- c) Find and interpret the value of  $R^2$ .
- d) Circle the point on your scatterplot which represents the game in which Brett Favre only had 5 completions. Describe below how this point differs from the rest of the points in the plot.
- e) Remove the point you circled from your calculator (delete both x and y) and calculate the regression line without the 5-completion game. Write the equation below, then draw this new line on your scatterplot in part (a). Label which line is for part (b) and which is for part (e).
- f) Find and interpret the new value of  $R^2$ .
3. In regression, an ***influential observation*** is one which has a great influence on the regression line. In each of the previous exercises, you removed a point that was different from the rest of the data set. Which point (the 67-degree day or the 5-completion game) would you consider to be a more influential observation? Explain.