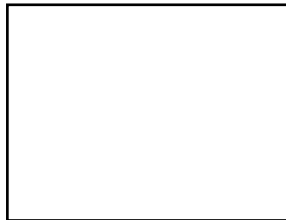


**2.5 THE CORRELATION COEFFICIENT**

The following data shows the number of absences of a small group of students and the test scores on the chapter test.

|            | John | Betty | Sarah | Peter | Fiona | Charlie | Tim | Gerry | Martine | Rachel |
|------------|------|-------|-------|-------|-------|---------|-----|-------|---------|--------|
| Test score | 72   | 65    | 80    | 36    | 50    | 21      | 79  | 64    | 44      | 55     |
| Absences   | 4    | 6     | 0     | 13    | 8     | 15      | 2   | 3     | 9       | 5      |

*Example:* Use your graphing calculator to run a linear regression to model the data above. Be sure to have the Diagnostics On. Draw a sketch of the data and the line of best fit below.



Describe your **WINDOW**:

When you entered LinReg(ax + b), there was an  $r$  – value on the screen. This value is called the \_\_\_\_\_.

The correlation coefficient is a number between \_\_\_\_\_ that describes how close a set of data is to being linear.

When the correlation coefficient is close to 1, the data shows a \_\_\_\_\_ correlation.

When the correlation coefficient is close to  $-1$ , the data shows a \_\_\_\_\_ correlation.

When the correlation coefficient is close to 0, the data shows a \_\_\_\_\_ correlation.

*Example:* Go to the following webpage: <http://noppa5.pc.helsinki.fi/koe/flash/corr/ch16.html>

Play with the arrow on the right side to see what how the arrangement of the data effects the correlation coefficient. You can also change the number of data points on the left by changing the “N” value and clicking on “New Sample”.

*Example:* After using the webpage above, answer the following questions.

- A positive correlation indicates the line of fit has a \_\_\_\_\_ slope.
- A negative correlation indicates the line of fit has a \_\_\_\_\_ slope.

*Example:* T or F: If False, give a counterexample. A set of data with a correlation coefficient of  $-1$  has a slope of  $-1$ .

*Example:* Suppose one set of data has a correlation coefficient of  $-0.76$ , and another set of data has a correlation coefficient of  $0.54$ . Which set of data has a stronger correlation? Why?

*Example:* Go to page 74 in your textbook. Complete the Checking Key Concepts Box #1 – 4.