Do higher-paid chief executive officers (CEOs) control bigger companies? Let us study x = annual CEO salary ($ millions) and y = annual company revenue ($ billions). The following data are based on information from Forbes magazine and represent a sample of top U.S. executives. Use this information for Questions 1–7.

x (salary, millions) 0.8 1.0 1.1 1.7 2.3

y (revenue, billions) 14 11 19 20 25

1. Draw a scatter diagram. Using the scatter diagram (no

calculations), would you estimate the linear correlation

coefficient to be positive, close to 0, or negative?

Explain your answer.

2. For the given data compute each of the following.

 

 (c) The slope b and y intercept a of the least-squares line;

write out the equation for the least-squares line.

 (d) Graph the least-squares line on your scatterplot of

Problem 1

3. Compute the sample correlation coefficient r. Compute the

coefficient of determination. Give a brief explanation of the

meaning of the coefficient of determination in the context of

this problem.

4. Compute the standard error of estimate Se. 4.

5. If a CEO has an annual salary of $1.5 million, what is his or

her annual company revenue as predicted by the least-squares

line?

6. Find a 90% confidence interval for your prediction of

Problem 5.

7. Using the sample correlation coefficient r computed in

Problem 3, test whether or not the population correlation

coefficient  is different from 0. Use  = 0.01. Is r

significant in this problem? Explain