12.9: Regression - Textbook Cost (Worksheet)

Name: _____

Section: _____

Student ID#:_____

Work in groups on these problems. You should try to answer the questions without referring to your textbook. If you get stuck, try asking another group for help.

Student Learning Outcomes

- The student will calculate and construct the line of best fit between two variables.
- The student will evaluate the relationship between two variables to determine if that relationship is significant.

Collect the Data

Survey ten textbooks. Collect bivariate data (number of pages in a textbook, the cost of the textbook).

a. Complete the table.

Number of pages	Cost of textbook

b. Which variable should be the dependent variable and which should be the independent variable? Why?

c. Graph "pages" vs. "cost." Plot the points on the graph in Analyze the Data. Label both axes with words. Scale both axes.

Analyze the Data

Enter your data into your calculator or computer. Write the linear equation, rounding to four decimal places.

a. Calculate the following:

i. $a =$ _____

ii. $b =$ _____

iii. correlation = _____

iv. $n =$ _____

v. equation: $\hat{y} =$ _____

vi. Is the correlation significant? Why or why not? (Answer in complete sentences.)

b. Supply an answer for the following senarios:

i. For a textbook with 400 pages, predict the cost.

ii. For a textbook with 600 pages, predict the cost.

c. Obtain the graph on your calculator or computer. Sketch the regression line.

Figure 12.9.1.

Discussion Questions

a. Answer each question in complete sentences.
   i. Does the line seem to fit the data? Why?
   ii. What does the correlation imply about the relationship between the number of pages and the cost?
b. Are there any outliers? If so, which point(s) is an outlier?
c. Should the outlier, if it exists, be removed? Why or why not?
