

DIRECTIONS:

- **Before beginning the homework:** Quickly, try the Calculator Help printout's example for calculating correlation r and regression statistics b_0 and b_1 from raw data. Check your answers to be sure that they are correct. If they are, you're ready for the homework!
- Data sets for some exercises are available on the MINITAB Data Sets link. (Recall that data files open as worksheets in MINITAB.)
- Textbook instructions for some exercises have been modified, or new parts added.

Textbook Exercises

- Exercise 2.1 (p. 95)
- Exercise 2.2
- Exercise 2.3
- Exercise 2.19 (p. 108)
Make the scatterplot in MINITAB:
Graph > Scatterplot > Simple > OK > (Select x and y variables) > OK
- Exercise 2.25 (p. 112)
- Exercise 2.26
Add part (d) to this exercise: Also calculate correlation r a third way, with MINITAB:
Stat > Basic Statistics > Correlation
- Exercise 2.29
Ignore the book's directions for this exercise. Follow these directions instead:
 - (a) Make a scatterplot in MINITAB.
 - (b) Calculate r using the formula

$$r = \frac{1}{n-1} \sum_{i=1}^n \left(\frac{x_i - \bar{x}}{s_x} \right) \left(\frac{y_i - \bar{y}}{s_y} \right)$$

(First, calculate \bar{x} , \bar{y} , s_x , s_y from *one-sample statistics* functions in your calculator.)
 - (c) Which speeds contribute positive terms to the correlation?
 - (d) Which speeds contribute negative terms to the correlation?
 - (e) Which speeds contribute neither positive terms nor negative terms to the correlation?
 - (f) Input two columns of data into your calculator and find r with your calculator's *correlation* function.
 - (g) Find correlation in MINITAB. (Use all available decimal places.)

- Exercise 2.7 (p. 100)
- Exercise 2.44 (p. 118)
Calculate r with MINITAB.
- Exercise 2.71 (p.136)
- Exercise 2.72
- Exercise 2.15 (p. 106)
- Exercise 2.73 (p. 136)
- Exercise 2.49 (p.125)
Hint for part (c): Find a regression fact about \bar{x} and \bar{y} in the Topic 8 Part 1 notes.
- Exercise 2.48 (p. 123)
Make a Fitted Line Plot in MINITAB:

Stat > Regression > Fitted Line Plot

Please read textbook pages 140-145 before doing the next four problems.

- Exercise 2.88 (p. 141)
Note: For this exercise, calculate b_0 and b_1 directly from your calculator's *regression* function after first inputting the raw data into your calculator. **See the Calculator Help website or printout for assistance.**
- Exercise 2.91
- Exercise 2.93
- Exercise 2.100

- Exercise 2.31 (p. 115)
- Exercise 2.32
Add three more parts to Exercise 2.32:
 - (b) First calculate b_0 and b_1 using the formulas shown in the Topic 8 Part 1 notes. Then confirm these answers by first inputting raw data and using the calculator's regression function.
 - (c) Give an English interpretation for the slope.
 - (d) Give a similar interpretation for the intercept.

(end of assignment)