Homework #1A - Chapter 1 (Montgomery & Runger, 5ed)

Chapter 1 The Role of Statistics in Engineering

Reading Assignment: pages 1 - 16

Study Assignment: Reference Learning Objectives, page 2: Have you mastered each of the objectives?

Homework #1B - Chapter 6 (Montgomery & Runger, 5ed)

Chapter 6 Descriptive Statistics

Reading Assignment: pages 191 - 196, 203 - 207, 210 - 217

Problems: (Answers to odd-numbered problems can be found in Appendix B.)

Section 6-1 Data Summary and Display

Pages 196 - 197, Problems 9, 11, 17, 19

Reference Problem 6-19, Page 197
a. Convert the temperature data to Degrees Celsius. \[ C = \frac{5}{9}(F - 32) \]
b. Predict (rather than calculate) how both the mean and the standard deviation will be affected.
c. Compute the sample mean and sample standard deviation for the converted data.
d. Compare your results to the answers for problem 6-19 a.
e. How do your results compare to your predictions?
f. Develop a rule as to what happens to the mean and the standard deviation if you add a constant to each data point or multiply each data point by a constant.

Section 6-3 Frequency Distributions and Histograms

Use the data from Table 6-2, page 198.
a. Create a Frequency Table (9 groups, 20 units wide)
b. Use your table to create a Histogram
c. Create a Relative Frequency Table and Chart
d. Create an Cumulative Relative Frequency and Graph
e. Check your results see Table 6-4, page 204; and Figure 6-7, page 205; and Figure 6-10, page 206.

Note: Table 6-4 is displayed horizontally as compared to our vertically illustrated example in class.

Use Microsoft Excel or a similar application program or even a statistical analysis program to calculate the mean, standard deviation, and variance for the data from Table 6-2, page 198. Use the same data to create a histogram; experiment by changing the number of groups and/or the width of the group intervals. See http://office.microsoft.com/en-us/excel-help/present-your-data-in-a-histogram-HA010342785.aspx?CTT=1 for an on-line tutorial which demonstrates how to use Excel's histogram feature.