M203J Practice Quiz 2 for Quiz 2 on October 7, 2009 Covering Chapters 8 and 9

Instructions: Answer each question, and when required explain your answer. Your explanation must be clear and complete. You may refer to your book, your notes and your homework papers.

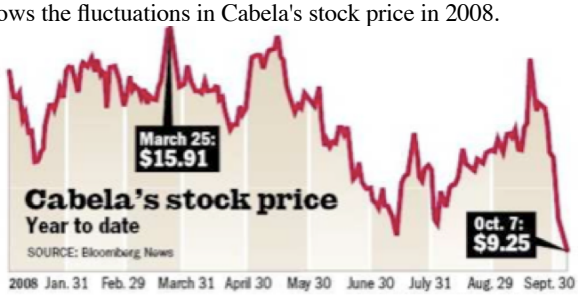
[1] A teacher wants to make a double stem and leaf plot using the scores on quizzes 1 and 2. Suppose the scores on quiz 1 are 77, 93, 75, 76, 84, 69, 65, 84, 83, 95, 85, 82, 65 and 55, and suppose the scores on quiz 2 are 55, 78, 65, 73, 98, 93, 82, 85, 65, 67, 40, 75 and 80. Construct the double stem and leaf plot for these two data sets.

[2] Make a single comparison histogram using the two data sets given in Problem 1. Use bins of length 10 with each bin ending on an even multiple of 10 (so 31-40, 41-50, etc.).

[3] For each of the following kinds of data, choose an appropriate method for graphing the data and an inappropriate method. Indicate which is which, and explain what is inappropriate about the one which is not appropriate. Answers can vary.

(a) Annual profits of a company over a period of years.
(b) The percentages of families below the poverty level in five different Nebraska cities.
(c) The percentages of Nebraska families whose annual incomes are in the following ranges: up to $50,000, above $50,000 but below $100,000, and above $100,000.

[4] The following line graph shows the fluctuations in Cabela's stock price in 2008.



(a) Discuss what is misleading about this graph. Answers can vary.
(b) Explain how you would redraw this graph so that it is not misleading.

[5] Explain how to select a simple random sample of 4 elements from the whole numbers running from 1 to 100, using the table on page 570 (a copy is included with the quiz). What sample do you get? Explain in enough detail that I can verify that your sample is the one you should have gotten.

[6] Explain how to select a 30% independent sample from the whole numbers running from 1 to 10, using the table on page 570. What sample do you get? Explain in enough detail that I can verify that your sample is the one you should have gotten.

[7] A farmer who wants to assess the level of pest infestation in her orchard is considering several different sampling methods. For each of (a) through (d), indicate what sampling technique it corresponds to (choose your answers from among independent sampling, simple random sampling, systematic sampling or cluster sampling).

(a) Randomly select a tree and then move row by row through the orchard, selecting every 15th tree for inspection.
(b) For each tree flip a coin; if the coin lands heads, inspect the tree.
(c) Number the rows of trees, randomly select a certain number of rows, and inspect every tree in those rows.
(d) Each tree is numbered and a random sample of those numbers is chosen to select the trees to be inspected.

[8] Consider the data 7, 8, 8, 1, 5, 6, 6, 9, 11, 20.

(a) Find the mean of this data.
(b) Find the median of this data.
(c) Find the mode(s) of this data.
(d) Find the range of this data.
(e) Create and label a box and whisker plot of this data.
(f) Find the sample standard deviation of this data.