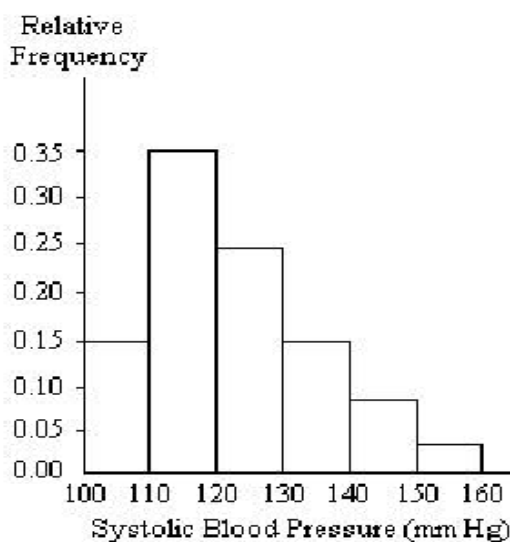


PRACTICE EXAM 1

Note: This is not intended to be a preview of the actual exam. Rather, it is meant to give you an idea of the types of questions that will be asked. There are concepts in these review problems that will not appear on the actual exam, just as there will be concepts on the actual exam that are not covered in these review problems.

1. Identify whether the variable is **categorical** or **quantitative**.
 - a) The colors of automobiles on a used car lot. _____
 - b) The number of complaint letters received by a company. _____
 - c) The temperature in a movie theater. _____
2. You are interested in the weights of backpacks BHCC students carry to class and decide to conduct a study using the backpacks carried by 30 BHCC students.
 - a) Identify the **Individuals** in the study. a) _____
 - b) Identify the **variable** being collected. b) _____
 - c) Is the variable **quantitative** or **categorical**? c) _____
 - d) What is the **sample size**? d) _____
 - e) What is the implied **population** of this study? e) _____
3. A nurse measured the blood pressure of each person who visited her clinic. Following is a **relative-frequency histogram** for the systolic blood pressure readings for those people aged 25 to 40. Use the histogram to answer the question.
 - a) Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading of at least 110 but less than 120?
 - b) Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading less than 120?
 - c) Given that 200 people were aged between 25 and 40, approximately how many had a systolic blood pressure reading less than 130?



4. The repair costs for five cars which were crashed by a safety testing organization were as follows: \$130, \$140, \$190, \$230, and \$140. Find the **mean** cost of repair.

5. Attendance records at a school show the number of days each student was absent during the year. The days absent for 15 students were as follows.

0, 2, 3, 4, 2, 3, 4, 6, 7, 2, 3, 4, 6, 9, 8

a) Find the median.

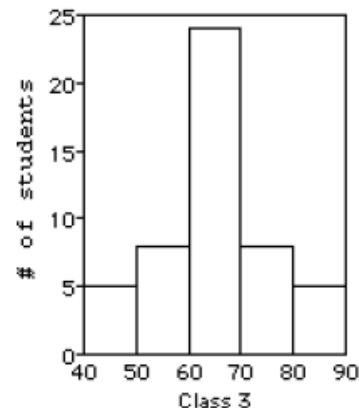
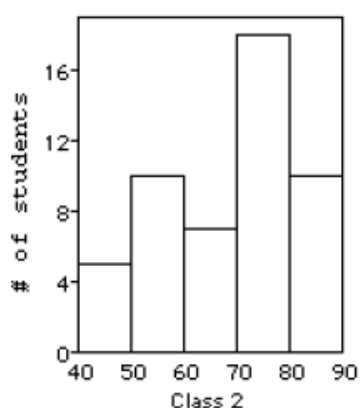
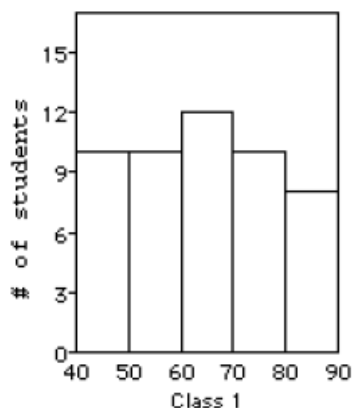
b) Construct the **dotplot** for the given data.

c) Find the mean.

d) Calculate the ADM

x															
Distance from Mean															

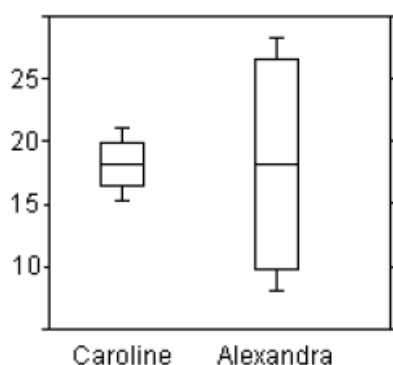
6. Three statistics classes (each of 50 students) took the same test. Shown below are histograms of the scores for the classes. Which class had the smallest standard deviation? Which class had the largest standard deviation? How do you know?



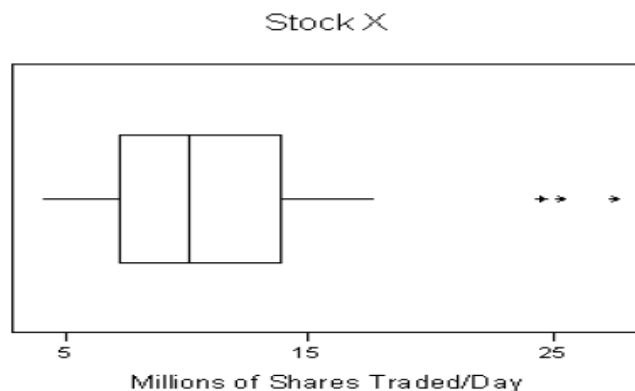
7. The test scores of 32 students are listed below. Construct a **boxplot** for the data.

32 37 41 44 46 48 53 55
 57 57 59 63 65 66 68 69
 70 71 74 74 75 77 78 79
 81 82 83 86 89 92 95 99

8. Here are boxplots of the points scored during the first 10 games of the basketball season for both Caroline and Alexandra. Summarize the similarities and differences in their performance so far. Use shape, center, range, typical range and any other data for your summary.



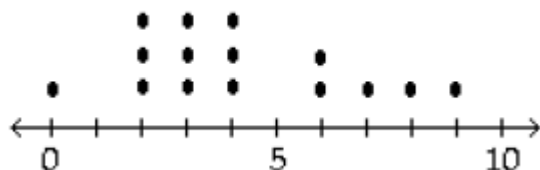
9. The box plot below represents the volume of stock X traded for a random sample of 35 trading days. The volume of a stock is the number of shares traded on a given day.



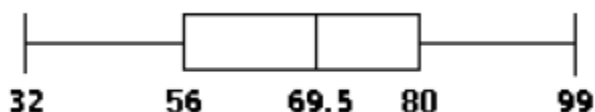
- a) Approximately, what is the median for this dataset?
- b) Are there any potential outliers in this dataset? If so, how many?
- c) Describe the shape of the distribution. Would the standard deviation or the interquartile range be a better measure of spread for this dataset? Explain.
10. Christine is currently taking college astronomy. The instructor often gives quizzes. On the past seven quizzes, Christine got the following scores.
51, 17, 59, 27, 13, 42, 72
- Use a calculator to find the **mean** and **standard deviation** for the given data. Round your final answer to one more decimal place than that used for the observations. Then find the **typical range** using the formula **mean \pm SD**.

KEY:

1. a) categorical; b) quantitative; c) quantitative.
2. a) backpacks; b) weights; c) quantitative; d) 30; e) all backpacks of BHCC students.
3. a) 35%; b) 50%; c) 150.
4. \$166.



- 5.
6. 3, 1, explain.
7. The data is fairly symmetrical. It is a fairly uniform distribution.



8. Both girls have a median score of about 18 points per game. Caroline is much more consistent, because her IQR is about 4 points, while Alexandra's is over 15. In other words, Alexandra has more variation in her scores than does Caroline. The distribution of scores for both women is symmetric.
9. a) median = about 10 million shares; b) yes, 3; c) The distribution is skewed to the right. The IQR would be a better measure of spread for this dataset, because it is highly skewed and contains 3 potential outliers. The standard deviation is not a resistant measure of variability.
10. mean = 40.1; SD = 22.1; typical range = (18, 62.2)