Quiz 1, MAT 315

Name:

**Questions 1 – 4 should be done by hand. You will need R for question 5 and can use R to verify any of your answers to questions 1 – 4.**

1. Twitter has more than 52,900,000 million users in the United States. A study of twitter accounts classified users by age. Here are the number of users (in millions) for six age groups.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Age category | 18-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65 and over |
| Number | 11.7 | 13.3 | 8.7 | 6.7 | 4.1 | 2.7 |

a. Make a bar chart for these data. (You can draw the chart by hand.)

b. What can you learn about the age distribution of twitter users from your barchart?

2. A report on the assets of American households says that the median net worth of U.S. families is $120,300. The mean net worth of these families is $556,300.

a. What explains the difference between these two measures of center?

b. For these data, which of these two statistics, mean or median, is the better choice of a numeric summery for center (or location)? Explain.

3. The Connecticut Agricultural Experiment Station conducted a study of the Calorie content in 100 ml of different types of beer. The data have been listed from smallest to largest.

19 22 23 27 28 28 29 29 29 30

30 31 31 31 31 32 32 33 33 34

35 39 40 41 42 43

a. Make a stem-and-leaf display of the Calorie counts. Use increments of 5. (So, stems should be 1, 1, 2, 2, 3, 3, 4, 4.)

b. Determine the median Calorie count. Explain how your determined your answer.

c. Determine the quartiles Q1 and Q3. Use them to find the IQR.

4. Here is a random sample of final exam scores from a statistics class: 78, 81, 85, 92. Using the formulas given in lecture (or from the textbook), calculate the mean and standard deviation of the exam scores. Show your calculations. (Feel free to check your results using R.)

5. Return to question 3. Enter the data in R into a variable named Calorie.

a. Make a boxplot of the data and sketch below.

b. Does the boxplot indicate that there are any outliers? If so, what are their values?