ICMA151 Statistics for Science I

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QUIZ 1 (5%) Each problem is worth 10 points.

Problem

1. The freshness and overall quality of milk depend upon the type of packaging used. The manager of a dairy company is considering changing the packaging from cartons to plastic. The quality control team of this dairy company packaged milk in 100 containers of each type of material. After a specific amount of time, the team tested the milk for freshness and overall quality. Identify the population and sample in this problem.

   Population: 200 containers of each type of milk

   Sample: Each type of milk

2. Classify the following variables as *qualitative (categorical)* or *quantitative (numerical)*. If quantitative, further classify as *discrete* or *continuous*.

a. The colors of cars at an auction.

qualitative

b. The amount of money spent building a new school.

quantitative, continuous

c. The genders of U.S. Senators.

qualitative

d. The styles of houses (one-story, two-story, split level, etc.).

qualitative

e. The letter grades of students in a statistics exam (A, B, C, D, F).

qualitative

f. The number of credit cards owned by customers.

quantitative, discrete

3. A sample of eight doctors was asked how many flu shots they had given to patients this fall. The numbers of flu shots were 6, 3, 5, 24, 2, 6, 0, and 8.

a. Find the sample mean.

6.75

b. Find the sample median.

5.5

c. Based on the values of the mean and median in parts (a) and (b) above, are the measurements symmetric or skewed?

Skewed

Explain.

Data is right skewed due to mean > median

4. The following data represent the scores for a sample of 10 students on a 20-point chemistry quiz:

16 14 2 8 12 12 9 10 15 13

a. Calculate the median.

12

b. Calculate the sample mean.

11.1

c. Calculate the sample variance.

16.766

5. Consider the following set of measurements:

5.4, 5.9, 3.5, 4.1, 4.6, 2.5, 4.7, 6.0,
5.4, 4.6, 4.9, 4.6, 4.1, 3.4, 2.2

You may use the Data Analysis tool if you want.

a. Find the 25th percentile: Q_1

3.80,

Find the 50th percentile: Q_2

4.60,

Find the 75th percentile: Q_3

5.15.

b. What is the value of the interquartile range?

1.35