

STA 110B

Name_____

Spring 2000

Section_____

Quiz 2

week of 31JAN2000

1. A random sample of 13 college students were asked about their beer-drinking habits. They reported consuming the following number of beers in the previous month:

1, 3, 3, 7, 30, 4, 35, 0, 4, 5, 6, 7, 4

a. (2 points) Calculate the mean and the median.

mean ≈ 8.3846

median = 4

a. (1 point) If these data were presented as a histogram (with class intervals going 0-4, 5-9, 10-14, etc.), would the histogram be symmetrical, skewed to the right, or skewed to the left?

Skewed to the right. Notice that mean $>$ median.

b. (2 points) Which measure of central tendency would best describe the beer-drinking habits of the typical college student: the mean or the median? Why? (Use what you know about the strengths and weaknesses of the various methods to measure central tendency. Answer in 3 sentences or less.)

In this case, the median represents the beer-drinking habits of the typical college student better than the mean. This is due to the fact that the median is more resistant to outliers. The mean in this example is increased substantially by the presence of some fairly atypical high values (30 and 35); the mean of over 8 is higher than all eleven other observations.

c. (1 point) What is the interquartile range?

Q1: 3

Q3: 7

IQR: $7-3=4$

d. (1 point) What type of data are these observations? (e.g. nominal, ordinal, continuous, discrete)

These data are discrete, since they measure a quantitative variable that is measured in whole numbers. However, I will accept the argument that these data could be continuous. It could be the case that the students were able to write in fractions (for instance "2.5 beers"), but all of those sampled just happened to have drunk only whole beers this month.

2. Mark the following sentences either true or false. If they are false, then rewrite them to make them correct.

a. (1 point) If you add 5 to each entry on a list, that adds 5 to the average.

True.

b. (1 point) If you change the sign of each entry on a list, that changes the sign of the SD.

False. Should be rewritten: "If you change the sign of each entry on a list, the SD remains unchanged."

c. (1 point) If you triple each entry on a list, that triples the SD.

True.