

Ma205 elementary statistics



**ASSIGN
BUSTER**

Elementary Statistics Identify each number as either continuous or discrete.

a. The average speed of cars passing a speed trap on the Maine Turnpike between 3 PM and 6 PM on a given Monday.

Continuous

b. A census taker wants to know the number of Maine families with preteens.

Continuous

c. The temperature of the ocean at various depths.

Discrete

2. For each of the following variables, indicate whether it is qualitative or quantitative.

a. The admitting diagnosis of patients admitted to a mental health clinic.

Qualitative

b. The weights of babies born in a hospital during a year.

Quantitative

c. The class rank of high school seniors at the local high school.

Qualitative

d. The religion of the sample subjects.

Qualitative

3. Identify each study as either experimental or observational.

a. A sample of fish is taken from the Androscoggin River, in Maine, to measure the level of mercury in the fish.

Observational

b. A research scientist gives a weight loss drug to a group of 500 patients and a placebo to another 500 patients to determine if the weight loss drug has an effect on the patients.

Experimental

4. In response to a poll on a Dateline NBC program about wildlife conservation, 1276 of 1450 callers said they would be willing to spend more money on imported fossil fuels in order to eliminate the possibility of oil drilling in national parks set aside as wildlife preserves. NBC followed with the announcement that 88% of Americans are willing to spend money to protect wildlife preserves. Do you think that the group of people who responded is likely to be representative of all Americans Explain your answer.

No, The response by this people do not represent the response of all the Americans, the reason is because the sample is too small as compared to the number in the population.

5. Construct a frequency table with 4 classes for the following data on the charge for monthly long distance phone bills for the last year: \$17. 06, \$20. 96, \$25. 97, \$26. 41, \$22. 02, \$27. 34, \$18. 67, \$24. 88, \$24. 07, \$25. 35, \$23. 39, \$20. 60.

Class

Frequency

17. 05 20. 05

2

20. 05 23. 05

3

23. 05 26. 05

5

26. 05 29. 05

2

6. Find the original data from the stem-and-leaf plot.

64, 67, 71, 71, 78, 84, 90, 93, 98, 96

7. The winners of the NCAA wrestling championships for the years 1968-1997 are given in the table below.

Champion

Frequency

Relative Frequency

Oklahoma State

5

16.667%

Iowa State

6

20%

Oklahoma

1

3.333%

Iowa

17

56.667%

Arizona State

1

3.333%

Total

30

100%

a. Compute relative frequencies for each class and fill in the appropriate

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column of the table. Round all relative frequencies to 3 decimal places

8. Consider the following relative frequency histogram displaying the number of cars sold per week last year for a given sales rep, Ronnie, at Emerson Toyota. Given that there are 52 weeks in a year, approximately how many times did Ronnie sell 2 cars per week Round your answer to the nearest whole week

0. 231 X 52 = 12. 012 there are 12 Weeks

9. The average retail price for bananas in 1994 was 46. 0 cents per pound, as reported by the U. S. Department of Agriculture. A recent random sample of 8 supermarkets gave the following prices for bananas in cents per pound

a. Find the mean price for bananas per pound. Round to 3 decimal places

Total= 680 therefore the mean is 85 cents

b. Find the median price for bananas per pound.

50. 5

c. Find the mode price for bananas per pound.

51

10. The number of absences for five children in a local kindergarten class is as follows.

kid

absent

X2

Sophie

3

9

Bert

7

49

Billy

6

36

Joey

8

64

julie

2

4

a. Complete the table and use the computing formula to find the standard deviation for the number of absences. Round to 3 decimal places

$$S = 2.588$$

Note: if you would prefer to use the other formula for standard deviation then adjust the table accordingly.

b. What is the range for the number of absences

$$\text{Range} = 8 - 2 = 6$$

c. Which appears to be a better measure of variation for this data set: range or standard deviation

The standard deviation is a better measure of variation.

d. What is the variance

Variance is the measure of dispersion from the mean of a data set.

11. True or False. For the data set $\{2, 3, 4, 3, 6, 75\}$, the median is a better measure of center than the mean. Explain.

It is not true, the mean of the above data set is 15.5 while the median is 4,

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and therefore the statement that the median is a better measurement of centre than the mean is false, the median and the mean are both measures of central tendencies of a data set and non can be termed as better than the other.

12. Suppose that the mean score on this test is 75. 6 with a standard deviation of 7. 8. Suppose also that the scores follow a bell-shaped distribution.

a. Convert a score of 80 to a z-score. Round your answer to 2 decimal places

$$Z = \frac{X - U}{\sigma}$$

Standard deviation

$$Z = \frac{80 - 75.6}{7.8}$$

$$\frac{4.4}{7.8} = 0.564$$

7.8

b. How many standard deviations is a score of 80 from the mean

A score of 80 is a half the standard deviation from the mean.

Reference;

Daniel Bridge (1963) Statistics: An Introduction to Quantitative Economic Research, Rand McNally publishers, Michigan