# Worksheet

1) Why might data be better visualized with a bar chart instead of a line chart or scatter plot?

a. The variables are continuous

b. Line charts simply connect the tops of bar charts

c. The variables are categorical



d. The data comprise a time series

Bar charts- are particularly effective for visualizing categorical data. They display discrete categories along the x-axis and allow you to compare the size or frequency of these categories easily.

2) Which type of chart should be used to display data with high cardinality?

a. Box and whisker plot

b. Pie chart

c. Bar chart

d. Histogram



3) Data analysis based on information observed without any direct intervention would be \_\_\_\_\_\_.

a. an observational study



b. an experiment

c. a causation study

d. preliminary research

observational study- this type of study involves collecting data without manipulating or intervening in the variables being studied. Researchers observe and analyze data as it naturally occurs.

4) A quality manager at Greatyear took a sample of automobile tires and found a defect rate of . The is a

a. Population

b. Sample

c. Parameter

d. Statistic



Statistic- a statistic is a numerical value that summarized or describes a characteristic of a sample. In this case, the 0.06% defect rate is a measure derived from the sample of 500 automobile tires.

5) A histogram is a graphical depiction of frequency or relative frequency of a set of \_\_\_\_\_ data.

a. qualitative

b. continuous



c. nominal

d. binary

Continuous data: a histogram is used to represent the distribution of continuous data by grouping the data into bins or intervals and displaying the frequency or relative frequency of data points within each bin.

6) Consider the following sample data: , , , and . The MAD is \_\_\_\_\_ and the sample variance is \_\_\_\_\_.

a. ,

b. ,



c. ,



d. ,

1. Calculate the mean of the data

Mean = 0+(-4) +2+ (-6)+10 / 5 =2/5 =0.4

1. Calculate the absolute deviations from the mean.

|0-0.4| = 0.4

|-4-0.4|= 4.4

|2-0,4|= 1.6

|-6-0.4|=6.4

|10-0.4|=9.6

1. calculate the average of these absolute deviations (MAD).

MAD= 0.4+4.4+1.6+6.4+9.6/5= 22.4/5= 4.48

7) What is the main benefit of a line graph to the reader?



a. A line graph quickly displays trends in numerical data, such as increasing or decreasing values over time

b. Most viewers are not familiar with other formats of charts, which will require explanation

c. Line graphs do not separate data into categories

d. Little benefit exists in using line graphs for well informed viewers

Line graphs are particularly effective for showing trends and patterns over time. They connect data points with lines, which helps readers visualize changes and trends in numerical data.

8) A variable that makes two unrelated phenomena appear to have a relationship is a \_\_\_\_\_\_.

a. observed variable

b. categorical variable

c. confounding variable



d. quantitative variable

Confounding variable: This is a variable that influences both the independent and dependent variables, causing a false or misleading associations between them. It can make two unrelated phenomena appear to have a relationship due to its impact on both.

9) The monthly salaries (in thousands of dollars) for a sample of employees of a firm are: , , , , , and . Which of the following statements is true about the mean, median and mode?

a. mean = median



b. mode < median < mean

c. mode < mean < median

d. mode = median = mode

10) Which of the following statements involve inferential statistics as opposed to descriptive statistics?

a. A class of fifty applied statistics students earned an average grade of .

b. A local fast food restaurant estimates that the average waiting time in the drive-thru is seconds.

c. The FAA reported close calls between airplanes and drones during the last year.

d. A total of people voted for Joe Johnson in a local election.

