

1. Identify the type of data (quantitative – discrete, quantitative –continuous, or qualitative) that would be used to describe a response.

_____ Level of nitrogen in a pond

_____ Number of cars crossing over the Sagamore bridge

_____ Colors of automobiles in the faculty parking lot.

_____ Classification of children in a day-care center (infant, toddler, preschool)

2. A sociologist wants to estimate the average amount of time it would take an adult to complete a survey. He administers the survey to 50 adults and finds that for the group, the average time to complete the survey is 20 minutes.

a. What is the variable?

b. What is the population?

c. What is the sample?

d. What is the parameter?

e. What is the statistic?

3. Identify which type of sampling is used: random, stratified, systematic, cluster, or convenience.

_____ CNBC asks viewers to call in and state whether they think the economy is improving, worsening, or staying the same.

_____ A study of drinking behavior is conducted by dividing the population into wine drinkers and beer drinkers and then selecting 100 people in each group.

_____ A researcher samples residents living in neighborhoods in a city. First she randomly selects 10 neighborhoods, and then she interviews everyone living in those neighborhoods.

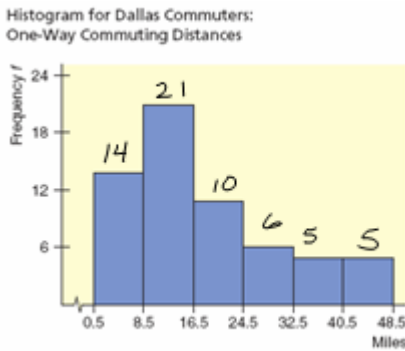
_____ Every 75th computer is selected from an assembly line and checked for defects.

_____ A teacher selects a sample of five children in her class by giving each child a number and selecting five numbers from a bowl.

4. Matching

	1. number of standard deviations from the mean	a) s
	2. sample mean	b) \bar{X}
	3. sample variance	c) z
	4. sample standard deviation	d) N
	5. sum	e) s^2
	6. sample size	f) σ
	7. population variance	g) μ
	8. population standard deviation	h) Σ
	9. population size	i) n
	10. population mean	j) σ^2

5. The commuting distance for a sample of drivers was recorded. The following is the histogram corresponding to the data set.



- What is the shape of this histogram?
- How many drivers commuted less than 16.5 miles each way?
- What percentage of drivers commuted more than 40.5 miles each way?

6. The following data set represents the highway fuel consumption in miles per gallon for a sample of 22 cars.

35 17 30 25 28 29 22 19 20 13 40
 45 37 30 29 24 25 40 16 22 24 29

Consider this a sample. Use your TI-83 (or calculate) to find:

- | | | | |
|-------------------|-------|-----------------------|-------|
| a) mean | _____ | b) median | _____ |
| c) mode | _____ | d) range | _____ |
| e) variance | _____ | f) standard deviation | _____ |
| g) first quartile | _____ | h) third quartile | _____ |
| i) IQR | _____ | | |

7. Draw a boxplot for the data in problem 6. Be sure to scale and label the axis.

8. Complete the following frequency table for the data in problem 6. Use 4 classes.

Class width = _____

Fuel Consumption (X)	Frequency	Relative Frequency	Cumulative Relative Frequency

9. Graph the data using a histogram. Use frequency for vertical axis. Carefully scale and label axes.

10. Suppose a student activities director at a college wants to estimate the number of days per week that students come to campus. A sample of fifty students is taken with the following results: two students do not come to campus (online courses only), four students come to campus one day per week, fourteen come to campus two days per week, fifteen come to campus three days per week, six come to campus four days per week, and nine come to campus five days per week.

a. Organize the data in a chart.

b. Construct a histogram of the data.

c. Find the mean, standard deviation, median, the first quartile, the third quartile, and the IQR.

d. Construct a boxplot of the data.

e. Find the 65th percentile.

f. Find the 40th percentile.

11. Suppose a data set has a mean of 100 and a standard deviation of 20.

a. What data value is one standard deviation above the mean?

b. What data value is two standard deviations below the mean?

c. The value of 135 is how many standard deviations above the mean?

12. The mean of each of these data sets is 100. For which data set is the standard deviation the highest? Explain your answer. (You do not need to calculate the standard deviation!)

Data Set A: 100, 100, 100, 100, 100, 100, 100, 100, 100

Data Set B: 97, 98, 99, 99, 100, 101, 101, 102, 103

Data Set C: 80, 85, 87, 90, 100, 110, 113, 115, 120

13. When a data set contains one extremely large or small value, is the mean or median a better measure of center? Give an example to justify your answer.