

***Business Statistics: Chapter 3: Surveys and Sampling – Quiz A***

Name \_\_\_\_\_

1. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. To do this, they plan to survey a random sample of employees. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.
  - a. There are five categories of employees (administration, faculty, professional staff, clerical and maintenance). Randomly select ten individuals from each category.
  - b. Each employee has an ID number. Randomly select 50 numbers.
  - c. Randomly select a school within the university (e.g., Business School) and survey all of the individuals (administration, faculty, professional staff, clerical and maintenance) who work in that school.
  - d. The HR Department has an alphabetized list of newly hired employees (hired within the last five years). After starting the process by randomly selecting an employee from the list, then every 5<sup>th</sup> name is chosen to be included in the sample.
  
2. Suppose the administration decides to do the following. At a Starbucks located on campus, every tenth person who enters on a Monday morning is selected to be surveyed. Explain why this may be biased.
  
3. Two of the questions asked in the survey of employees are shown below.
  - *Since exercise is so important to good health, would you be willing to participate in organized walks during lunch hour?*
  - *Would you attend a “low fat cooking” demonstration?*
  - a. Are these questions valid (appropriately worded)? Explain.
  - b. Which question is more neutral? Explain.
  
4. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They used a list of AARP (American Association of Retired Persons) members as the sampling frame. Based on a systematic sample, they estimated the percentage to be 17%.
  - a. Define the target population.
  - b. Define the parameter.
  - c. What is the statistic?
  - d. How might the results be biased?

***Business Statistics: Chapter 3: Surveys and Sampling – Quiz A – Key***

1. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. To do this, they plan to survey a random sample of employees. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.

a. There are five categories of employees (administration, faculty, professional staff, clerical and maintenance). Randomly select ten individuals from each category.

Stratified.

b. Each employee has an ID number. Randomly select 50 numbers.

Simple Random Sample.

c. Randomly select a school within the university (e.g., Business School) and survey all of the individuals (administration, faculty, professional staff, clerical and maintenance) who work in that school.

Cluster.

d. The HR Department has an alphabetized list of newly hired employees (hired within the last five years). After starting the process by randomly selecting an employee from the list, then every 5<sup>th</sup> name is chosen to be included in the sample.

Systematic.

2. Suppose the administration decides to do the following. At a Starbucks located on campus, every tenth person who enters on a Monday morning is selected to be surveyed. Explain why this may be biased.

Depending on the time during which individuals are surveyed, undercoverage may be an issue. For example, different categories of employees have different levels of flexibility (clerical and maintenance workers don't have as much flexibility in their work days as do administration, faculty and professional staff). In addition, persons other than employees would presumably enter Starbucks, although a screening question can be used to make sure those interviewed are employees.

3. Two of the questions asked in the survey of employees are shown below.

- *Since exercise is so important to good health, would you be willing to participate in organized walks during lunch hour?*
- *Would you attend a "low fat cooking" demonstration?*

a. Are these questions valid (appropriately worded)? Explain.

The first question is "leading" the respondent to answer yes.

b. Which question is more neutral? Explain.

The second question is more neutral because it does not lead to a yes response.

4. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They used a list of AARP (American Association of Retired Persons) members as the sampling frame. Based on a systematic sample, they estimated the percentage to be 17%.

a. Define the target population.

All U.S. drivers 50 or older.

b. Define the parameter.

% who intend to purchase a hybrid in the next two years.

c. What is the statistic?

17% based on the sample.

d. How might the results be biased?

The sampling frame does not include all U.S. drivers 50 or older (not everyone 50 or older is a member of AARP).

***Business Statistics: Chapter 3: Surveys and Sampling – Quiz B***

Name \_\_\_\_\_

1. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management suspects that its regular customers have concerns regarding the security of online transactions. To determine if this is the case, they plan to survey a random sample of their regular customers. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.

- a. Regular customers belong to a rewards program and have a customer rewards ID number. Randomly select 100 numbers.
- b. ASW has stores in five different cities in the northeastern U.S. Randomly select one of the stores and survey all regular customers that belong to its rewards program.
- c. ASW has an alphabetized list of regular customers who belong to their rewards program. After randomly selecting a customer on the list, every 25<sup>th</sup> customer from that point on is chosen to be in the sample.
- d. Customers are grouped into four age categories (under 21, 21 to 35, 36 to 50, and over 50). Randomly select 10 regular customers in each age category.

2. In the ASW study described above,

- a. Define the target population.
- b. Define the parameter.
- c. What is the sampling frame?
- d. How might the results be biased?

3. One member of the management team at ASW suggests that their survey could be conducted online. Customers logging on to the online store would be asked to take a few minutes to complete the survey and would be offered a coupon as incentive to participate. Explain how this approach might be biased.

4. Two of the questions asked in the survey of customers are shown below.

- *Given the prevalence of identity theft, are you reluctant to provide credit card information online?*
- *Are you confident that any information you provide online is secure?*

- a. Are these questions valid (appropriately worded)? Explain.
- b. Which question is more neutral? Explain.

***Business Statistics: Chapter 3: Surveys and Sampling – Quiz B – Key***

1. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management suspects that its regular customers have concerns regarding the security of online transactions. To determine if this is the case, they plan to survey a random sample of their regular customers. Under consideration are several plans for selecting the sample. Name the sampling strategy for each.

- d. Regular customers belong to a rewards program and have a customer rewards ID number. Randomly select 100 numbers.

Simple Random Sample.

b. ASW has stores in five different cities in the northeastern U.S. Randomly select one of the stores and survey all regular customers that belong to its rewards program.

Cluster.

c. ASW has an alphabetized list of regular customers who belong to their rewards program. After randomly selecting a customer on the list, every 25<sup>th</sup> customer from that point on is chosen to be in the sample.

Systematic.

d. Customers are grouped into four age categories (under 21, 21 to 35, 36 to 50, and over 50). Randomly select 10 regular customers in each age category.

Stratified.

2. In the ASW study described above,

- a. Define the target population.

All regular ASW customers.

- b. Define the parameter.

% of regular ASW customers who have concerns about online security.

- c. What is the sampling frame?

ASW customers who belong to the rewards program.

- d. How might the results be biased?

Not all regular customers belong to the rewards program and ASW should also consider how others (potential customers) feel.

3. One member of the management team at ASW suggests that their survey could be conducted online. Customers logging on to the online store would be asked to take a few minutes to complete the survey and would be offered a coupon as incentive to participate. Explain how this approach might be biased.

This is a voluntary response sample. This sample consists of customers already visiting the online store; the bias would probably be toward not having concerns about online security.

4. Two of the questions asked in the survey of customers are shown below.

- *Given the prevalence of identity theft, are you reluctant to provide credit card information online?*
- *Are you confident that any information you provide online is secure?*

a. Are these questions valid (appropriately worded)? Explain.

The first question is leading by mentioning the prevalence of identity theft.

b. Which question is more neutral? Explain.

The second question is more neutral because it does not lead the customer to a specific response.

***Business Statistics: Chapter 3: Surveys and Sampling Multiple Choice Quiz – Quiz C***  
***Name*** \_\_\_\_\_

3.3. Analyze the sampling method.

1. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. Suppose that there are five categories of employees (administration, faculty, professional staff, clerical and maintenance) and the university decides to randomly select ten individuals from each category. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.3. Analyze the sampling method.

2. The administration of a large university is interested in learning about the types of wellness programs that would interest its employees. Suppose that the university randomly selects a school (e.g., the Business School) and surveys all of the individuals (administration, faculty, professional staff, clerical and maintenance) who work in that school. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.2. Analyze the sampling method.

3. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. Suppose that ASW's regular customers belong to a rewards program and have a customer rewards ID number. ASW decides to randomly select 100 numbers. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.3. Analyze the sampling method.

4. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. Suppose that ASW has an alphabetized list of regular customers who belong to their rewards program. After randomly selecting a customer on the list, every 25th customer from that point on is chosen to be in the sample. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.2. Identify population, sample, sampling frame and parameter.

5. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. All regular ASW customers is known as the \_\_\_\_\_ of the study.

- A. parameter
- B. statistic
- C. target population
- D. sampling frame
- E. sample

3.2. Identify population, sample, sampling frame and parameter.

6. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. Which of the following is the parameter of interest in the ASW study?

- A. all regular ASW customers
- B. % of regular ASW customers who have concerns about online security
- C. ASW customers who belong to the rewards program
- D. % of ASW customers who belong to the rewards program that don't shop online
- E. none of the above



## 3.5. Identify bias.

7. ASW, a regional shoe chain, has recently launched an online store. Sales via the Internet have been sluggish compared to their brick and mortar stores, and management wants to survey its regular customers about potential concerns regarding the security of online transactions. One member of the management team at ASW suggests that their survey could be conducted online. Customers logging on to the online store would be asked to take a few minutes to complete the survey and would be offered a coupon as incentive to participate. Which of the following statements is true?

- A. This is a voluntary response sample.
- B. This would result in an unbiased random sample.
- C. This would result in a biased sample.
- D. Both A and B
- E. Both A and C

## 3.2. Identify population, sample, sampling frame and parameter.

8. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They selected a systematic sample from a list of AARP (American Association of Retired Persons) members. Based on this sample, they estimated the percentage to be 17%. The sampling frame for this study is

- A. all drivers in the U.S. 50 years of age or older
- B. 17%
- C. the list of AARP members
- D. how older drivers view hybrid cars
- E. none of the above

## 3.2. Identify population, sample, sampling frame and parameter.

9. A consumer research group is interested in how older drivers view hybrid cars. Specifically, they wish to assess the percentage of drivers in the U.S. 50 years of age or older who intend to purchase a hybrid in the next two years. They selected a systematic sample from a list of AARP (American Association of Retired Persons) members. Based on this sample, they estimated the percentage to be 17%. Which of the following statements about this study is true?

- A. 17% of all U.S. drivers 50 years of age or older intend to purchase a hybrid in the next two years.
- B. 17% is a parameter.
- C. 17% is a statistic.
- D. Both A and B
- E. Both A and C

3.4. Identify bias.

10. Which of the following survey questions is leading?

- A. Given the prevalence of identity theft, are you reluctant to provide credit card information online?
- B. Are you confident that any information you provide online is secure?
- C. Are you concerned about the security of online transactions?
- D. Both A and B
- E. Both B and C

***Business Statistics: Chapter 3: Surveys and Sampling – Quiz C – Key***

- 1. B
- 2. C
- 3. A
- 4. D
- 5. C
- 6. B
- 7. E
- 8. C
- 9. C
- 10. A

***Business Statistics: Chapter 3: Surveys and Sampling Multiple Choice Quiz – Quiz D***  
***Name*** \_\_\_\_\_

3.2. Analyze the sampling method.

1. Management at a large multinational corporation would like to survey its employees about the level of interest in combining flexible work schedules with telecommuting from home. Each employee has an ID number, and the administration plans to randomly select 250 numbers. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.3. Analyze the sampling method.

2. Management at a large multinational corporation would like to survey its employees about the level of interest in combining flexible work schedules with telecommuting from home. The HR Department has an alphabetized list of newly hired employees (hired within the last year). After starting the process by randomly selecting an employee from the list, then every 5<sup>th</sup> name is chosen to be included in the sample. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.2. Identify population, sample, sampling frame and parameter.

3. Management at a large multinational corporation would like to survey its employees about the level of interest in combining flexible work schedules with telecommuting from home. Which of the following is the parameter of interest in this study?

- A. All employees at the corporation.
- B. Percentage of employees who are interested in combining flexible work schedules with telecommuting from home.
- C. Employees who work overtime.
- D. Percentage of employees who do not have a computer at home.
- E. None of the above

3.4. Identify bias.

4. Suppose that a local government agency is interested in gauging public opinion about natural gas drilling in northeastern Pennsylvania by surveying residents who live near a proposed drilling site. Which of the following questions is leading?

- A. Do you support the proposed gas drilling?
- B. Given the positive economic impact, do you support gas drilling?
- C. Given the negative impact on the environment, do you oppose gas drilling?
- D. Both A and B.
- E. Both B and C.

3.2. Identify population, sample, sampling frame and parameter.

5. The online MBA director at a large business school surveys a sample of current students to determine their level of satisfaction with the program. She finds that 67% are “very satisfied” with the online program. This is a

- A. parameter.
- B. statistic.
- C. target population.
- D. sampling frame.
- E. good result.

3.5. Identify bias.

6. A women’s advocacy group believes that there is gender discrimination in the financial services industry. One member of the group, a financial analyst, offers to survey a sample of women at her company about this issue. Which of the following statements is true about the proposed study?

- A. It involves a stratified sample that is representative of the population.
- B. It involves a simple random sample that is representative of the population.
- C. It involves a convenience sample and may not be representative of the population.
- D. It will result in unbiased data.
- E. It involves taking a census of the target population.

3.5. Identify bias.

7. During the BP Gulf oil crisis in the summer of 2010, a local television news program routinely asked viewers to call in with their opinion about proposed solutions to the problem. These results were likely biased because

- A. of a bad sampling frame.
- B. of an undefined target population.
- C. leading questions.
- D. of a voluntary response sample.
- E. of measurement error.

3.2. Identify population, sample, sampling frame and parameter.

8. In May, 2010, the *Pew Research Center for the People & the Press* carried out a national survey to gauge opinion on the Arizona Immigration Law. It found that 59% approved of the new law. This is a

- A. statistic.
- B. parameter.
- C. target population.
- D. sampling frame.
- E. census.

3.3. Analyze the sampling method.

9. The HR department of a large company wants to determine how often to bring representatives from the financial firm managing employee pensions on site to meet with individuals about their retirement plans. In order to determine level of interest, they decide to survey employees. Suppose they group employees by age categories (e.g., *under 30*; *30 – under 45*; *45 – under 60*, *60 or older*) and randomly select 50 individuals from each category. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

3.3. Analyze the sampling method.

10. The HR department of a large company wants to determine how often to bring representatives from the financial firm managing employee pensions on site to meet with individuals about their retirement plans. In order to determine level of interest, they decide to survey employees. Suppose they select one department (e.g., *Sales*) and survey all employees within that department. This sampling plan is called

- A. Simple Random Sampling
- B. Stratified Sampling
- C. Cluster Sampling
- D. Systematic Sampling
- E. Convenience Sampling

***Business Statistics: Chapter 3: Surveys and Sampling – Quiz D – Key***

1. A
2. D
3. B
4. E
5. B
6. C
7. D
8. A
9. B
10. C

**Business Statistics: Part I: Exploring and Collecting Data – Test A**  
**Name** \_\_\_\_\_

Chapter 2: Identify cases, variables and any units.

1. In listing a property, real estate agencies provides information on a number of variables. Which of the following variables related to property listings is categorical?

- A. Real Estate Tax
- B. Number of Bedrooms
- C. Style of Home
- D. Asking Price
- E. Number of Bathrooms

Chapter 2: Identify cases, variables and any units.

2. What scale of measurement is the style of a home (colonial, split level, ranch etc)?

- A. Nominal
- B. Interval
- C. Quantitative
- D. Ordinal
- E. Numerical

Chapter 2: Identify time series and cross sections.

3. Real estate agencies also keep track of housing prices in a given area. Suppose they also provide their clients with quarterly median selling prices for homes in a given area for the past three year period. These data are

- A. Cross-sectional
- B. Time Series
- C. Categorical
- D. Nominal
- E. Ordinal

Chapter 3: Analyze sampling method.

4. A researcher is conducting a study on eating disorders. Using a list of recent participants in the online Weight Watchers program, she randomly selects a name from the alphabetized list. She then chooses every tenth person from that point on to include in her study. This sampling strategy is called

- A. Systematic
- B. Cluster
- C. Random
- D. Stratified
- E. Judgmental

Chapter 3: Identify population, sample, sampling frame and parameter.

5. A researcher is conducting a study on eating disorders. Using a list of recent participants in the online Weight Watchers program, she randomly selects a sample from the alphabetized list. This list represents the

- A. Sample
- B. Parameter
- C. Population
- D. Sampling frame
- E. Statistic

Chapter 3: Identify bias.

6. A researcher is conducting a study to determine how knowledgeable teenagers are about making good food choices. She decides to interview teenagers eating at a fast food restaurant. The results may be biased because this is a

- A. simple random sample.
- B. voluntary response sample.
- C. convenience sample.
- D. stratified sample.
- E. census.

Chapter 4: Determine if a display of data is appropriate.

7. A magazine that publishes product reviews conducted a survey of teenagers' preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. Which of the following charts would be appropriate for displaying the marginal distribution of brands?

<i>Cell Phone</i>	<i>Male</i>	<i>Female</i>
LG Rumor	55	87
Sidekick LX	99	150
BlackJack II	196	113

- A. Histogram
- B. Boxplot
- C. Pie Chart
- D. Line Graph
- E. Stem and Leaf Display



Chapter 4: Find conditional and marginal distributions.

8. A magazine that publishes product reviews conducted a survey of teenagers' preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. What percent of teenagers preferred LG Rumor?

<i>Cell Phone</i>	<i>Male</i>	<i>Female</i>
LG Rumor	55	87
Sidekick LX	99	150
BlackJack II	196	113

- A. 50%
- B. 41%
- C. 25%
- D. 16%
- E. 20%

Chapter 4: Examine a contingency table.

9. A magazine that publishes product reviews conducted a survey of teenagers' preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. What percent of female teenagers preferred the Sidekick LX?

<i>Cell Phone</i>	<i>Male</i>	<i>Female</i>
LG Rumor	55	87
Sidekick LX	99	150
BlackJack II	196	113

- A. 43%
- B. 60%
- C. 21%
- D. 50%
- E. 16%

Chapter 4: Find conditional and marginal distributions.

10. A magazine that publishes product reviews conducted a survey of teenagers' preferences for cell phones. Three brands of cell phone designed specifically with teens in mind were the focus of the study. The table summarizes responses by brand and gender. What percent of teenagers who preferred the BlackJack II were males?

<i>Cell Phone</i>	<i>Male</i>	<i>Female</i>
LG Rumor	55	87
Sidekick LX	99	150
BlackJack II	196	113

- A. 63%
- B. 32%
- C. 16%
- D. 50%
- E. 41%

Chapter 4: Determine if a display of data is appropriate.

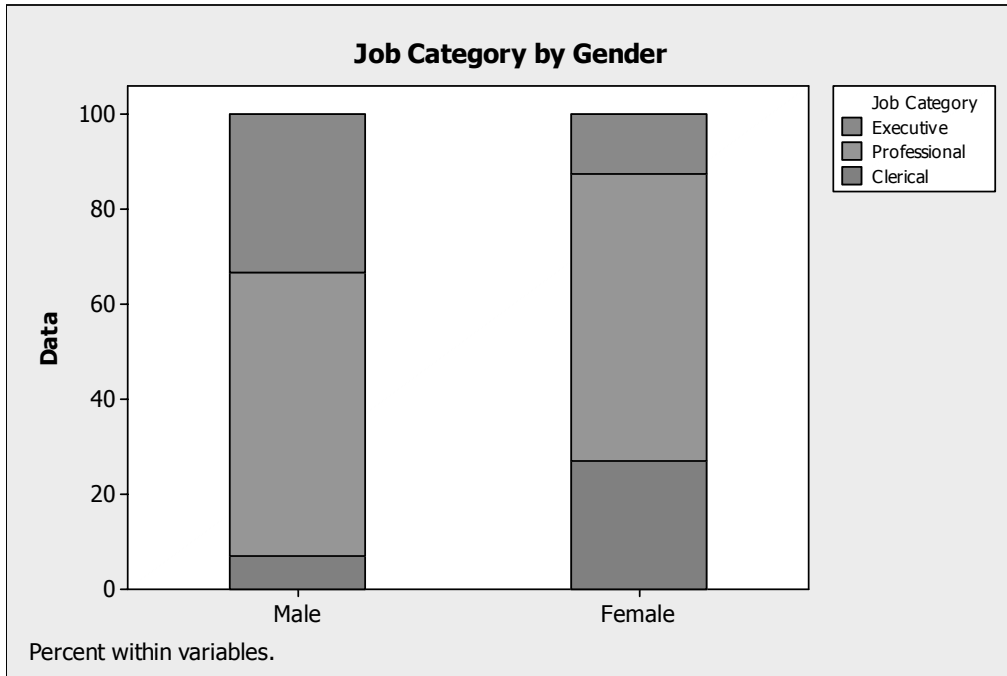
11. An advocacy group is investigating whether gender has an effect on job category in large investment firms. She surveyed a sample of firms with the results shown below. The most appropriate display for these data is a

<i>Job Category</i>	<i>Male</i>	<i>Female</i>
Clerical / Technical	85	215
Professional Staff	720	480
Executive / Managerial	400	100

- A. histogram.
- B. stem and leaf display.
- C. boxplot.
- D. segmented bar chart.
- E. frequency table.

Chapter 4: Determine if a display of data is appropriate.

12. An advocacy group is investigating whether gender has an effect on job category in large investment firms. She surveyed a sample of firms with the results shown below. Which of the following statements is true about gender and job category?



- A. A greater percentage of males are executives compared to females.
- B. A greater percentage of females are executives compared to males.
- C. Job category appears to be independent of gender.
- D. A smaller percentage of females are clerical compared to males.
- E. The segmented bar chart is not appropriate for these data.

Chapter 5: Analyze data of quantitative variables.

13. A manufacturer of cable wire periodically selects samples to monitor the process. A sample of ten wires is selected and the diameters (in cm.) are 0.493, 0.534, 0.527, 0.511, 0.565, 0.559, 0.519, 0.562, 0.551, and 0.530. The mean diameter is

- A. 0.455 cm.
- B. 0.535 cm.
- C. 0.511 cm.
- D. 0.565 cm.
- E. 0.499 cm.

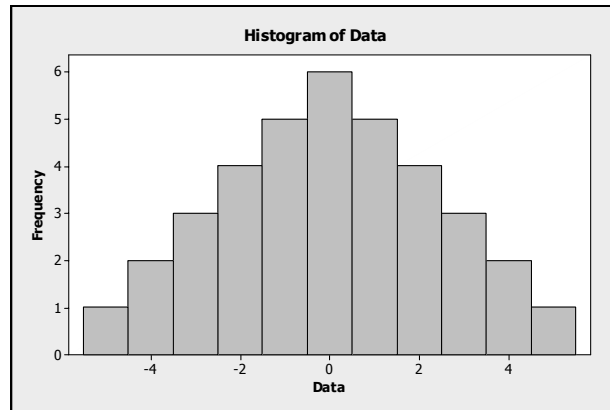
Chapter 5: Analyze data of quantitative variables.

14. A manufacturer of cable wire periodically selects samples to monitor the process. A sample of ten wires is selected and the diameters (in cm.) are 0.493, 0.534, 0.527, 0.511, 0.565, 0.559, 0.519, 0.562, 0.551, and 0.530. The standard deviation is

- A. 0.455 cm.
- B. 0.005 cm.
- C. 0.045 cm.
- D. 0.024 cm.
- E. 0.099 cm.

Chapter 5: Create and interpret displays of data.

15. Which is true of the data shown in the histogram?

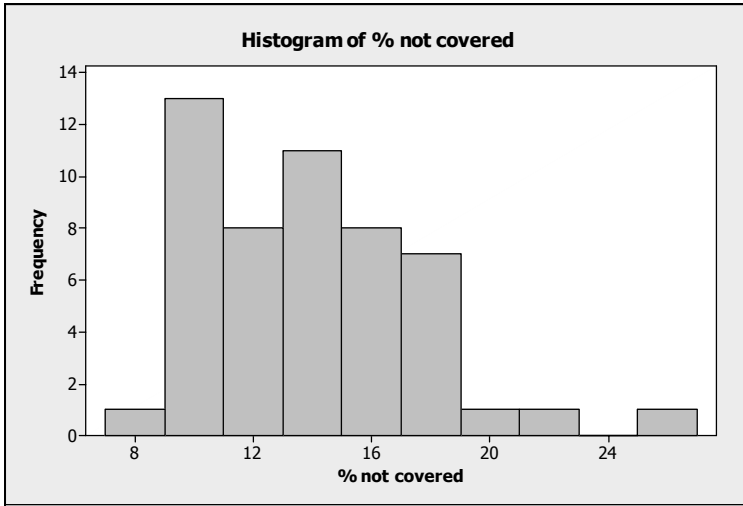


- I. The distribution is approximately symmetric.
  - II. The mean and median are approximately equal.
  - III. The median and IQR summarize the data better than the mean and standard deviation.
- A. I only
  - B. III only
  - C. I and II
  - D. I and III
  - E. I, II and III

Chapter 5: Describe displays of distributions.

16. In 2002 data were collected on the percent of people in the U.S. not covered by health insurance. Summary statistics and a histogram for these data are shown below. What is the most appropriate measure to describe the center of these data?

Min	Q1	Median	Q3	Max	Mean	SD
7.9	10.8	13.4	16.7	25.8	13.9	3.6

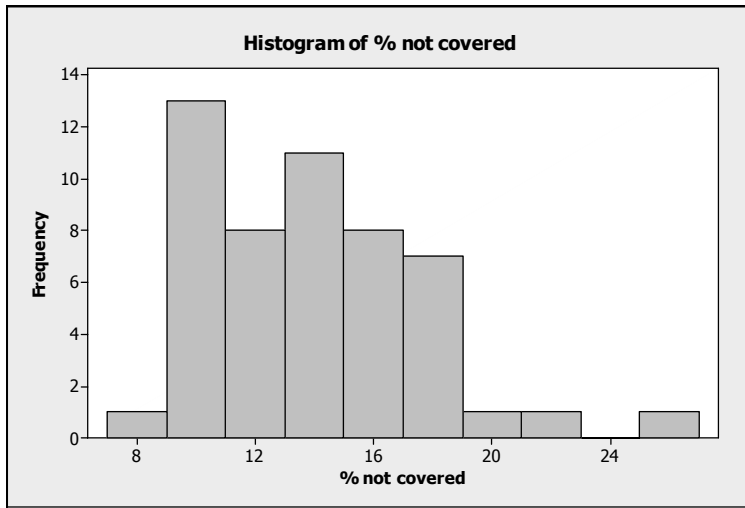


- A. Range
- B. Mean
- C. Standard Deviation
- D. Median
- E. IQR

Chapter 5: Interpret summary statistics.

17. In 2002 data were collected on the percent of people in the U.S. not covered by health insurance. Summary statistics and a histogram for these data are shown below. The IQR for these data is

Min	Q1	Median	Q3	Max	Mean	SD
7.9	10.8	13.4	16.7	25.8	13.9	3.6

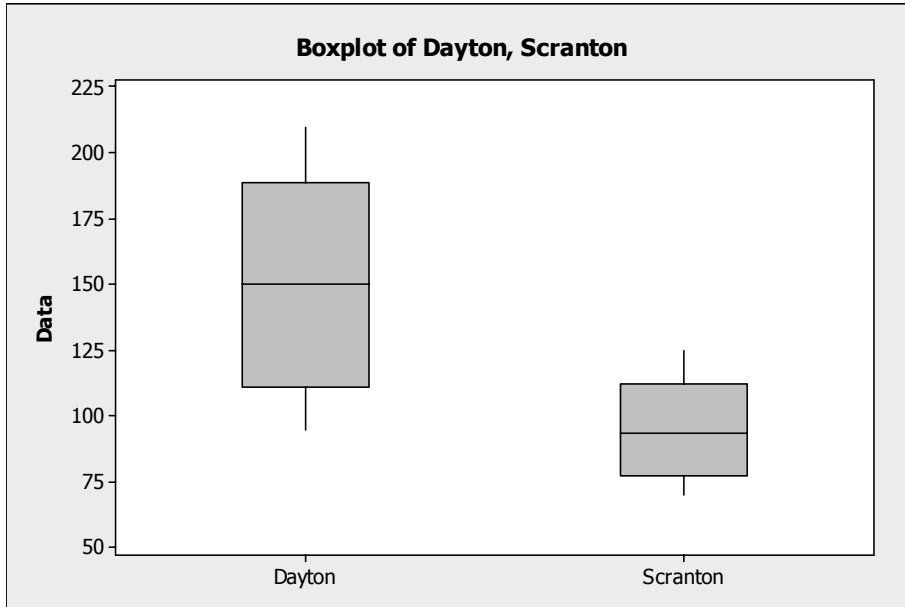


- A. 16.7 %
- B. 5.9 %
- C. 17.9 %
- D. 3.6 %
- E. 13.4

%

Chapter 5: Create and interpret displays of data.

18. An office supply chain has stores in two locations, Dayton and Scranton. One of these stores is to be closed within the coming year, and to help make the decision, management reviews sales data. Below are boxplots for monthly unit sales for both locations.



Which of the following statements is not correct?

- A. Monthly sales are higher in Dayton compared to Scranton.
- B. The IQR for sales in Dayton is larger than that for Scranton.
- C. Monthly sales are less variable in Scranton compared to Dayton.
- D. Both distributions are fairly symmetric.
- E. Monthly sales are more variable in Scranton compared to Dayton.

Chapter 5: Describe displays of distributions.

19. Below is a stem and leaf display of prices for a sample homes recently sold in a metropolitan area in the southeastern region of the U.S.

**Stem-and-Leaf Display: Home Prices**

Stem-and-leaf of Home Prices N = 13  
 Leaf Unit = 10000

```

4 | 1 5788
(4) | 2 0123
5 | 2 89
3 | 3 0
2 | 3 5
1 | 4 0
    
```

Which of the following statements is true?

- A. The mean would be more appropriate than the median to describe the center of this distribution.
- B. This distribution is fairly symmetric.
- C. This distribution is right skewed.
- D. This distribution is left skewed.
- E. Both A and C

Chapter 5: Compare results using standardization.

20. Suppose a sample of 60 business majors revealed that the average time spent studying per week is 22 hours with a standard deviation of 4 hours. For one student reporting that he studies 16 hours per week, the corresponding  $z$  score is

- A. -1.5
- B. 1.5
- C. 2.2
- D. -2.2
- E. -3.0

Chapter 6: Interpret the value of correlation coefficients and squared correlations.

21. A correlation of zero between two quantitative variables means that
- A. we have done something wrong in our calculation of  $r$ .
  - B. there is no association between the two variables.
  - C. there is no linear association between the two variables.
  - D. re-expressing the data will guarantee a linear association between the two variables.
  - E. none of the above



Chapter 6: Interpret the value of correlation coefficients and squared correlations.

22. A regression analysis of company profits and the amount of money the company spent on advertising produced a  $R^2 = .72$ . Which of these is true?
- I. This model can correctly predict the profit for 72% of companies.
  - II. 72% of the variance in company profit can be accounted for by the model.
  - III. On average, companies spend about 72% of their profits on advertising.
- A. None
  - B. I only
  - C. II only
  - D. III only
  - E. I and III

***Business Statistics: Part I: Exploring and Collecting Data – Test A – Key***

- 1. C
- 2. A
- 3. B
- 4. A
- 5. D
- 6. C
- 7. C
- 8. E
- 9. A
- 10. A
- 11. D
- 12. A
- 13. B
- 14. D
- 15. C
- 16. D
- 17. B
- 18. E
- 19. C
- 20. A
- 21. C
- 22. C