

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

- 1) Statistics is the science of conducting studies to \_\_\_\_\_ 1) \_\_\_\_\_  
A) solve a system of equations.  
B) collect, organize, summarize, analyze, and draw conclusions from data.  
C) hypothesize, experiment, and form conclusions.  
D) monitor, study, and report on a subject.

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

- 2) How are statistics important in our everyday lives, and why do we need to understand them? 2) \_\_\_\_\_

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- 3) A \_\_\_\_\_ is a characteristic or attribute of a subject that can assume different values? 3) \_\_\_\_\_  
A) sample                      B) exponent                      C) datum                      D) variable
- 4) Variables with values that are determined by chance are called \_\_\_\_\_. 4) \_\_\_\_\_  
A) random variables.                      B) specialized.  
C) inconsistent variables.                      D) erratic variables.
- 5) Each value in a data set may be referred to as either a data value or a(n) \_\_\_\_\_. 5) \_\_\_\_\_  
A) point                      B) atom                      C) subdata                      D) datum
- 6) If a weather center monitors and calculates the average number of tornadoes that pass through Topeka, Kansas each year, what type of variable would they be investigating? 6) \_\_\_\_\_  
A) random variable                      B) hypothesis variable  
C) isolated variable                      D) controlled variable
- 7) Inferential statistics is based on probability. 7) \_\_\_\_\_  
A) True                      B) False

- 8) Which of the following correctly describes the relationship between a sample and a population? 8) \_\_\_\_\_
- A) A sample is a group of subjects selected from a population to be studied.
  - B) A sample is a group of populations that are subject to observation.
  - C) A population and a sample are not related.
  - D) A population is a group of samples that may or may not be included in a study.

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- 9) A \_\_\_\_\_ consists of all subjects that are being studied. 9) \_\_\_\_\_
- 10) \_\_\_\_\_ is a decision-making process for evaluating claims about a population, based on information obtained from samples. 10) \_\_\_\_\_

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- 11) Which branch of statistics would employ probability to predict how many miles one should be able to drive a 2000 Toyota Celica during its lifetime? 11) \_\_\_\_\_
- A) descriptive statistics
  - B) time series statistics
  - C) inferential statistics
  - D) differential statistics
- 12) In which branch of statistics would a researcher acquire twenty-five 2000 Toyota Celicas, drive them until they had a major mechanical failure, record the final mileage, and then write a report for *Car and Driver*? 12) \_\_\_\_\_
- A) descriptive statistics
  - B) inferential statistics
  - C) differential statistics
  - D) predictive statistics
- 13) Based on her electric bills from last year, Mrs. Smith expects she will be paying \$75/month this year. This is an example of descriptive statistics. 13) \_\_\_\_\_
- A) True
  - B) False

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- 14) A \_\_\_\_\_ variable assumes values that can be counted. 14) \_\_\_\_\_

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- 15) Quantitative data can be further classified as continuous or nonsequential. 15) \_\_\_\_\_
- A) False
  - B) True

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- 16) What level of measurement would be applied when doing a survey on the average American's shoe size? 16) \_\_\_\_\_

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- 17) What level of measurement classifies data into mutually exclusive categories in which no order or ranking can be imposed on the data? 17) \_\_\_\_\_  
A) ratio                      B) ordinal                      C) nominal                      D) interval
- 18) What level of measurement allows for the ranking of data, a precise difference between units of measure, and also includes a true zero? 18) \_\_\_\_\_  
A) nominal                      B) ratio                      C) ordinal                      D) interval
- 19) Classifying the fruit in a basket as apple, orange, or banana, is an example of the \_\_\_\_\_ level of measurement? 19) \_\_\_\_\_  
A) ordinal                      B) interval                      C) ratio                      D) nominal
- 20) Rating a restaurant by a number of stars is an example of an ordinal level of measurement. 20) \_\_\_\_\_  
A) True    B) False

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- 21) The \_\_\_\_\_ level of measurement classifies data into categories that can be ranked; however, precise differences between the ranks do not exist. 21) \_\_\_\_\_
- 22) Determining the number of people from the state of Alaska who voted for a Republican in the last election is an example of \_\_\_\_\_ measurement. 22) \_\_\_\_\_

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- 23) A person's hair color would be an example of a quantitative variable. 23) \_\_\_\_\_  
A) True    B) False
- 24) The variable of height is an example of a quantitative variable. 24) \_\_\_\_\_  
A) False    B) True

- 25) The number of birds in a tree is an example of a continuous variable. 25) \_\_\_\_\_  
A) True B) False
- 26) The amount of time needed to run the Boston marathon is an example of which type of variable? 26) \_\_\_\_\_  
A) temporal B) qualitative C) continuous D) discrete
- 27) Determine which of the following describes quantitative data. 27) \_\_\_\_\_  
i). the name of a chemical sample  
ii). the mass of a chemical sample  
iii). the color of a chemical sample  
A) i, ii, and iii B) i and ii only C) ii only D) i only
- 28) Determine which of the following describes quantitative data. 28) \_\_\_\_\_  
i). the length of an object in feet  
ii). the speed of an object in meters per second  
iii). the number of objects that are blue  
A) iii only B) i, ii, and iii C) i only D) i and ii only
- 29) Determine which of the following describes qualitative data. 29) \_\_\_\_\_  
i). the volume of a shipping container, in gallons  
ii). the name of the material from which the container is made  
iii). the shape of the container  
A) i, ii, and iii B) i and ii only C) ii and iii only D) i and iii only
- 30) Determine which of the following describes qualitative data. 30) \_\_\_\_\_  
i). the make of the car with license plate number VNS-862  
ii). the license plate number VNS-862  
iii). the number of vehicles whose license plate number begins with "VNS"  
A) neither i, nor ii, nor iii B) iii only  
C) i and ii only D) i only
- 31) Determine which of the following describes nominal data. 31) \_\_\_\_\_  
i. My favorite days of the week are Friday, Saturday, and Tuesday.  
ii. My favorite day of the week is Friday, my second-favorite is Saturday, and third-favorite is Tuesday.  
A) ii only B) both i and ii  
C) i only D) neither i nor ii



- 38) Which one of the following data are continuous? 38) \_\_\_\_\_  
 A) the number of musicians performing in the MP3 file  
 B) the number of times the file has been downloaded  
 C) the time remaining for an MP3 music download  
 D) all of these represent continuous data
- 39) When rolling two six-sided dice, your total roll ranges from 2 (double ones) to 12 (double sixes). Characterize the nature of the roll total. 39) \_\_\_\_\_  
 A) quantitative and continuous  
 B) qualitative and continuous  
 C) qualitative and discrete  
 D) quantitative and discrete
- 40) Give the boundaries of the given value. 40) \_\_\_\_\_  
 3.089  
 A) 3.088-3.09  
 B) 3.0889-3.0891  
 C) 2.089-4.089  
 D) 3.0885-3.0895
- 41) The four basic methods used to obtain samples are: random, irregular, cluster, and stratified sampling. 41) \_\_\_\_\_  
 A) False  
 B) True
- 42) In a research study, it is always preferable for the researcher to carefully choose his participants rather than randomly select them from a suitable group. 42) \_\_\_\_\_  
 A) True  
 B) False

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

- 43) \_\_\_\_\_ sampling is used when the population is large and it includes subjects residing over a large geographic area. 43) \_\_\_\_\_

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- 44) If you were told that four students from a class of twenty were questioned for a poll about study habits, this would be an example of \_\_\_\_\_. 44) \_\_\_\_\_  
 A) stratified sampling  
 B) cluster sampling  
 C) systematic sampling  
 D) random sampling
- 45) What type of sampling is being employed if the country is divided into economic classes and a sample is chosen from each class to be surveyed? 45) \_\_\_\_\_  
 A) random sampling  
 B) cluster sampling  
 C) stratified sampling  
 D) systematic sampling

- 46) Questioning every 14th customer leaving a theatre about the movie they had seen, would be an example of systematic sampling. 46) \_\_\_\_\_  
 A) False B) True
- 47) Which of the following sample types should you always regard as unreliable? 47) \_\_\_\_\_  
 A) stratified samples B) simple random samples  
 C) cluster samples D) voluntary response samples
- 48) A pollster randomly samples 135 Democrats, 164 Republicans and 16 Independents (all registered voters) in Metro City and asks each poll participant which mayorial candidate he or she prefers. Identify the kind of sample that the pollster is using. 48) \_\_\_\_\_  
 A) sample of convenience B) stratified sample  
 C) cluster sample D) voluntary response sample
- 49) A middle school student passes out leaflets to the adults at a school function. The leaflets ask the recipient to indicate whether they believe in anthropogenic global warming. The bottom of the leaflet indicates that the completed leaflet should be returned to the student. Identify the kind of sample that is being used. 49) \_\_\_\_\_  
 A) cluster sample B) stratified sample  
 C) sample of convenience D) systematic sample
- 50) By visiting homes door-to-door, a municipality surveys all the households in 146 randomly-selected neighborhoods to see how residents feel about a proposed property tax increase. Identify the type of sample that is being used. 50) \_\_\_\_\_  
 A) systematic sample B) voluntary response sample  
 C) cluster sample D) stratified sample
- 51) An electronics manufacturer test every 1000<sup>th</sup> cell phone to verify that it is functioning properly. Identify the kind of sample that is being used. 51) \_\_\_\_\_  
 A) simple random sample B) cluster sample  
 C) systematic sample D) stratified sample
- 52) The names of all 106 students in a professor's class are written on identical slips of paper, and the slips are placed into a large glass jar. Then, the professor selects 11 random slips from the jar. Identify the kind of sample that is being used. 52) \_\_\_\_\_  
 A) simple random sample B) systematic sample  
 C) cluster sample D) sample of convenience
- 53) An independent variable can also be called a(n) 53) \_\_\_\_\_  
 A) explanatory variable. B) outcome variable.  
 C) free variable. D) suggestive variable.

- 54) A dependent variable can also be referred to as an outcome variable. 54) \_\_\_\_\_  
 A) False B) True
- 55) When running an experimental study, the group that is manipulated can be called the 55) \_\_\_\_\_  
 treatment group.  
 A) False B) True
- 56) If a researcher manipulates one of the variables and tries to determine how the 56) \_\_\_\_\_  
 manipulation influences other variables, the researcher is conducting a(n)  
 A) experimental study. B) confounding study.  
 C) observational study. D) independent study.
- 57) Which of the following best defines the relationship between confounding, dependent, 57) \_\_\_\_\_  
 and independent variables?  
 A) The confounding variable influences the dependent variable, but is not separated  
 from the independent variable.  
 B) The confounding variable may cause the dependent variable to act independently.  
 C) The influence of the confounding variable cannot be separated from the influence  
 of the dependent variable.  
 D) The confounding variable influences the independent variable, but has no effect on  
 the dependent variable.
- 58) In a true experimental study, the subjects should be assigned to groups randomly. If this 58) \_\_\_\_\_  
 is not possible and a researcher uses intact groups, they are performing a  
 \_\_\_\_\_.  
 A) dependent study B) convoluted study  
 C) quasi-experimental study D) observational study

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- 59) One advantage of a(n) \_\_\_\_\_ study is that it occurs in a natural 59) \_\_\_\_\_  
 setting without intervention by the researcher.
- 60) In an experimental study, manipulation of the \_\_\_\_\_ variable is 60) \_\_\_\_\_  
 studied to see if it leads to changes in the \_\_\_\_\_ variable.



- 65) In an experiment, subjects are put into two categories according to sex, and then each subject is randomly assigned a treatment . This is an example of... 65) \_\_\_\_\_  
 A) confounding B) randomized blocking  
 C) observational studies D) gender bias
- 66) A(n) \_\_\_\_\_ makes it difficult to determine whether an experimental outcome is due to the applied treatment. 66) \_\_\_\_\_  
 A) error B) uncooperative subject  
 C) counfounder D) perplexer
- 67) A magazine tests a new car and reports that it could be twice as much fun to drive. This is NOT an example of 67) \_\_\_\_\_  
 A) suspect samples B) detached statistics  
 C) changing the subject D) implied connections
- 68) An advertisement for a pick-up truck states that it is 30% more powerful. This is an example of \_\_\_\_\_. 68) \_\_\_\_\_  
 A) changing the subject B) suspect samples  
 C) detached statistics D) ambiguous averages
- 69) A television station interviews five movie viewers after the first showing of a movie. After finding out that all five enjoyed the movie very much, the reporter states that this movie will definitely be a big hit. This is an example of \_\_\_\_\_. 69) \_\_\_\_\_  
 A) ambiguous averages B) changing the subject  
 C) detached statistics D) suspect samples
- 70) In an advertisement for a car, a driver is shown driving expertly through a difficult road course. At the bottom of the ad, the following is included in small print "Professional driver on a closed course". Which of the following choices best describes this misuse of data? 70) \_\_\_\_\_  
 A) changing the subject B) faulty survey questions  
 C) implied connections D) detached statistics

Answer Key

Testname: CHAPTER 1 WORKSHEET

- 1) B
- 2) Statistics are used to analyze the results of surveys. It is important to understand the terms and concepts so that one can understand exactly what is being represented (or misrepresented) by a given statement.
- 3) D
- 4) A
- 5) D
- 6) A
- 7) A
- 8) A
- 9) population
- 10) Hypothesis testing
- 11) C
- 12) A
- 13) B
- 14) discrete
- 15) A
- 16) the interval level of measurement
- 17) C
- 18) B
- 19) D
- 20) A
- 21) ordinal
- 22) ratio-level
- 23) B
- 24) B
- 25) B
- 26) C
- 27) C
- 28) B
- 29) C
- 30) C
- 31) C
- 32) B
- 33) B
- 34) A
- 35) C
- 36) D
- 37) C
- 38) C
- 39) D
- 40) D
- 41) A

Answer Key

Testname: CHAPTER 1 WORKSHEET

- 42) B
- 43) Cluster
- 44) B
- 45) C
- 46) B
- 47) D
- 48) B
- 49) C
- 50) C
- 51) C
- 52) A
- 53) A
- 54) B
- 55) B
- 56) A
- 57) A
- 58) C
- 59) observational
- 60) independent or explanatory; dependent or outcome
- 61) A
- 62) A
- 63) C
- 64) B
- 65) B
- 66) C
- 67) C
- 68) C
- 69) D
- 70) C