File: ch01, Chapter 1: Introduction to Statistics

True/False

1. Virtually all areas of business use statistics in decision making.
Ans: True
Response: See section 1.1, Statistics in Business
Difficulty: Easy
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

2. Statistics can be used to predict the business future.
Ans: True
Response: See section 1.1, Statistics in Business
Difficulty: Easy
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

3. Statistics are used to market vitamins.
Ans: True
Response: See section 1.1, Statistics in Business
Difficulty: Easy
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

4. A list of final grades in an introductory class in business is an example of statistics
Ans: false
Response: See section 1.1, Statistics in Business
Difficulty: Easy
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

5. The complete collection of all entities under study is called the sample.
Ans: False
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

6. A portion or subset of the entities under study is called the statistic.
Ans: False
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

7. A descriptive measure of the population is called a parameter.
Ans: True
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

8. A census is the process of gathering data on all the entities in the population.
Ans: True
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

9. Statistics is commonly divided into two branches called descriptive statistics and summary statistics.
Ans: False
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

10. A descriptive measure of the sample is called a statistic.
Ans: True
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

11. Gathering data from a sample to reach conclusions about the population from which the sample was drawn is called descriptive statistics.
Ans: False
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

12. Calculation of population parameters is usually either impossible or excessively time consuming and costly.
Ans: True
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy

Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

13. The basis for inferential statistics is the ability to make decisions about population parameters without having to complete a census of the population.
Ans: True
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

14. A variable is a numerical description of each of the possible outcomes of an experiment.
Ans: True
Response: See section 1.3 Variable and data
Difficulty: Medium
Learning Objective: 1.3: Explain the difference between variables, measurement, and data.

15. Variables and measurement data are interchangeable terms.
Ans: False
Response: See section 1.3 Variable and data
Difficulty: Medium
Learning Objective: 1.3: Explain the difference between variables, measurement, and data.

16. Measurements occur when a standard process is used to assign numbers to attributes or characteristics of a variable.
Ans: True
Response: See section 1.3 Variable and data
Difficulty: Medium
Learning Objective: 1.3: Explain the difference between variables, measurement, and data.

17. All numerical data must be analyzed statistically in the same way because all of them are represented by numbers.
Ans: False
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

18. The manner in which numerical data can be analyzed statistically depends on the level of data measurement represented by numbers being analyzed.
Ans: True
Response: See section 1.4, Data Measurement
Difficulty: Medium

Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

19. The lowest level of data measurement is the ratio level.
Ans: False
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

20. The highest level of data measurement is the ratio level.
Ans: True
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

21. Numbers which are used only to classify or categorize the observations represent data measured at the nominal level.
Ans: True
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

22. Numbers which are used to rank-order the performance of workers represent data measured at the interval level.
Ans: False
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

23. Nominal and ordinal data are sometimes referred to as qualitative data.
Ans: True
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

24. Nominal and ordinal data are sometimes referred to as quantitative data.
Ans: False
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

25. With interval-level data, the zero point is a matter of convention and does not mean the absence of the phenomenon under observation.
Ans: True
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

26. Interval- and Ratio-level data are sometimes referred to as quantitative data.
Ans: True
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

Multiple Choice

27. Which of the following statements about business statistics is not true?
a) Virtually every area of business uses statistics in decision making.
b) Presenting business statistics always requires the use of a specific graph called a bar chart.
c) There is a wide variety of uses and applications of statistics in business.
d) Business statistics can be used to forecast future values and predict trends.
Ans: b
Response: See section 1.1, Statistics in Business
Difficulty: Easy
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

28. Rebecca Sear, Marketing Director of a regional restaurant chain, is directing a study to identify and assess the in-dining experience of the customers at one of the restaurants. She directs her staff to design a web-based market survey for distribution to all of the restaurant's 1265 customers who enjoyed a meal during the past 6 months. For this study, the set of 1265 customers is _____.
a) a parameter
b) a sample
c) the population
d) a statistic
e) the frame
Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

29. Rebecca Sear, Marketing Director of a regional restaurant chain, is directing a study to identify and assess the in-dining experience of the customers at one of the restaurants. She directs her staff to design a web-based market survey for distribution to all of the restaurant's 100 customers who enjoyed a meal during the past 6 months. For this study, the set of 100 customers is _____.
a) a parameter
b) a sample
c) the population
d) a statistic
e) the frame
Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

30. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of industrial customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. For this study, the set of 1,500 industrial customers is _____.
a) a parameter
b) a sample
c) the population
d) a statistic
e) the frame
Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

31. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of industrial customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by selecting a focus group of 40 industrial customers. For this study, the set of 40 industrial customers is _____.
a) a parameter
b) a sample
c) the population
d) a statistic
e) the frame
Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

32. Miguel Hernandez, Senior Vice President of Human Resources at Memorial Hospital, is exploring the usage of nursing over-time hours in the emergency department during the last operating year (January 1, 2012, through December 31, 2012). Miguel intends to survey the emergency department nurses regarding their perception of over-time needs. For this survey y the set of all emergency department nurses who worked at Memorial Hospital during the last operating year is _____.
a) a parameter
b) a sample
c) the population
d) a statistic
e) the frame
Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

33. Miguel Hernandez, Senior Vice President of Human Resources at Memorial Hospital is exploring the usage of nursing overtime in the emergency department during the last operating year. Staffing records and emergency department visits for 20 days between the period of January 1, 2012, and December 31, 2012, are selected for analysis. For this study, the group of 20 days is a _____.
a) parameter
b) sample
c) population
d) statistic
e) frame
Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

34. When a person collects information from the entire population, this is called a _____.
a) parameter
b) sample
c) population
d) census
e) statistic
Ans: d
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

35. Miguel Hernandez, Senior Vice President of Human Resources at Memorial Hospital is exploring the usage of nursing overtime in the emergency department during the last operating year. Staffing records and emergency department visits for all 360 days between the period of January 1, 2012, and December 31, 2012, are selected for analysis. Miguel's dataset can best be classified as a

a) statistic
b) census
c) sample
d) sorting
e) parameter

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

36. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. Sue is ordering a _____.

a) statistic from the industrial customers
b) census of the industrial customers
c) sample of the industrial customers
d) sorting of the industrial customers
e) parameter of the industrial customers

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

37. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by selecting a focus group of 40 industrial customers. Sue is ordering a _____.

a) statistic from the industrial customers
b) census of the industrial customers
c) sample of the industrial customers
d) sorting of the industrial customers
e) parameter of the industrial customers

Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

38. Pinky Bauer, Chief Financial Officer of Harrison Haulers, Inc., suspects irregularities in the payroll system, and orders an inspection of "each and every payroll voucher issued since January 1, 2013." Pinky is ordering a _____.

a) statistic from the payroll vouchers
b) census of the payroll vouchers
c) sample of the payroll vouchers
d) sorting of the payroll vouchers
e) parameter of the payroll vouchers

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

39. Pinky Bauer, Chief Financial Officer of Harrison Haulers, Inc., suspects irregularities in the payroll system, and orders an inspection of "every tenth payroll voucher issued since January 1, 2013." Pinky is ordering a _____.

a) statistic from the payroll vouchers
b) census of the payroll vouchers
c) sample of the payroll vouchers
d) sorting of the payroll vouchers
e) parameter of the payroll vouchers

Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

40. On discovering an improperly adjusted drill press, Jack Joyner, Director of Quality Control, ordered a 100% inspection of all castings drilled during the evening shift. Jack is ordering a _____.

a) statistic from the castings
b) census of the castings

c) sample of the castings
d) sorting of the castings
e) parameter of the castings

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

41. On discovering an improperly adjusted drill press, Jack Joyner, Director of Quality Control, ordered an inspection of every fifth casting drilled during the evening shift. Jack is ordering a _____.

a) statistic from the castings
b) census of the castings
c) sample of the castings
d) sorting of the castings
e) parameter of the castings

Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

42. The process of summarizing the data is called
a) inferential statistics
b) nominal data
c) descriptive statistics
d) deferential statistics
e) nonparametric statistics

Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Easy
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

43. A cancer research group was interested in determining the percentage of women 40 years or older that have regularly scheduled mammograms. To accomplish this, they surveyed 500 women in this age group and based on 155 women that responded affirmatively, estimated the percentage of all women in this age group that have regularly scheduled mammograms. This process is an example of _____.

a) nonparametric statistics
b) nominal data

c) descriptive statistics
d) inferential statistics
e) census

Ans: d
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

44. A local manufacturing plant randomly selected 200 items from a production run and 9 of them are defective. The proportion of defective items in this sample is a _____.

a) parameter
b) sample
c) population
d) statistic
e) frame

Ans: d
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

45. Using data from a group to generalize to a larger group involves the use of _____.

a) descriptive statistics
b) inferential statistics
c) population derivation
d) sample persuasion
e) relative level data

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

46. A student makes an 82 on the first test in a statistics course. From this, she estimates that her average at the end of the semester (after other tests) will be about 82. This is an example of _____.

a) descriptive statistics
b) inferential statistics
c) population derivation
d) sample persuasion
e) relative level data

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

47. Jessica Salas, president of Salas Products, is reviewing the warranty policy for her company's new model of automobile batteries. Life tests performed on a sample of 100 batteries indicated an average life of seven years under normal usage. Jessica recommended a six-year warranty period for the new model. This is an example of _____.

a) descriptive statistics
b) executive forecasting
c) population derivation
d) sample persuasion
e) inferential statistics

Ans: e
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Hard
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

48. On discovering an improperly adjusted drill press, Jack Joyner, Director of Quality Control, ordered an inspection of every fifth casting drilled during the evening shift. Less than 1% of the castings were defective; so, Jack released the evening shift's production to assembly. This is an example of _____.

a) nonparametric statistics
b) nominal data
c) descriptive statistics
d) inferential statistics
e) judgmental statistics

Ans: d
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Hard
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

49. A new sales person is paid a commission on each sale. This person made $2,000 his first month on the job. From this he concludes that he will make $24,000 during his first year. This is an example of _____.

a) inferential statistics
b) nominal data

c) descriptive statistics
d) deferential statistics
e) nonparametric statistics

Ans: a
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Hard
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

50. A market researcher is interested in determining the average income for families in Duval County, Florida. To accomplish this, she takes a random sample of 400 families from the county and uses the data gathered from them to estimate the average income for families of the entire county. This process is an example of _____.

a) nonparametric statistics
b) nominal data
c) descriptive statistics
d) inferential statistics
e) census

Ans: d
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

51. The Universal Pulp Company has a plant in Portland, Oregon. Management wants to determine the average number of sick days taken per worker in this plant in 2012. To do this, the management gathers records on all the workers in the plant and averages the number of sick days taken in 2012 by each worker. This process is using _____.

a) nonparametric statistics
b) nominal data
c) descriptive statistics
d) inferential statistics
e) a census

Ans: e
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

52. The Magnolia Swimming Pool Company wants to determine the average number of years it takes before a major repair is required on one of the pools that the company constructs. The president of the company asks Rick Johnson, a company accountant, to randomly contact fifty families that built

Magnolia pools in the past ten years and determine how long it was in each case until a major repair. The information will then be used to estimate the average number of years until a major repair for all pools sold by Magnolia. The average based on the data gathered from the fifty families can best be described as a _____.

a) parameter
b) sample
c) population
d) statistic
e) frame
Ans: d

Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

53. The Chamber of Commerce wants to assess its membership's opinions of the North American Free Trade Agreement. One-hundred of the 2,000 members are randomly selected and contacted by telephone. Seventy-five reported an overall favorable opinion, and twenty-five reported an overall unfavorable opinion. The proportion, 0.75, is a _____.

a) parameter
b) statistic
c) population
d) sample
e) frame

Ans: b
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

54. What proportion of San Diego's registered voters favor trade restrictions with China? In an effort to determine this, a research team calls every registered voter in San Diego and contacts them. The proportion determined from the data gathered is a _____.

a) parameter
b) sample
c) population
d) statistic
e) frame

Ans: a
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium

Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

55. A researcher wants to know what the average variation is in altimeters of small, privately owned airplanes. The task of determining this is expensive and time consuming, if even possible, given the large number of such airplanes. The researcher decides to use government records to randomly locate the owners of ten such planes and then get permission to test the altimeters. When the researcher is done, he will use the data gathered from the group of ten to reach conclusions about all small, privately owned airplanes. This process can best be described as _____.

a) data statistics
b) research statistics
c) descriptive statistics
d) inferential statistics
e) nonparametric statistics

Ans: d
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

56. A researcher wants to know what the average variation is in altimeters of small, privately owned airplanes. The task of determining this is expensive and time consuming, if even possible, given the large number of such airplanes. The researcher decides to use government records to randomly locate the owners of ten such planes and then get permission to test the altimeters. When the researcher is done, he will use the data gathered from the group of ten to reach conclusions about all small, privately owned airplanes. The average variation computed using the data gathered on the group of ten airplanes is best described as a _____.

a) measurement
b) data
c) statistic
d) parameter.
e) census

Ans: c
Response: See section 1.2, Basic Statistical Concepts
Difficulty: Medium
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

57. Which of the following is not a random variable when flipping a coin?
a) Assigning 1 when Tail and 0 when Head
b) Assigning 0 when Head and 1 when Tail
c) The list of outcomes Head and Tail
d) The number of Heads

e) Assigning 1 when Tail or Head
Ans: e
Response: See section 1.3 Variable and data
Difficulty: Hard
Learning Objective: 1.3: Explain the difference between variables, measurement, and data.

58. Which of the following measurement processes is least likely to yield usable data?

a) Counting the number of shoppers entering the department store between 12 pm and 2 pm.
b) Studying cell phone bills and recording the number of text messages sent per month.
c) Performing a consumer survey of preferences in fast food chains
d) Asking students to list three things that are important to them.
e) Calculating the percent of college students who work at least 20 hours while attending school.

Ans: d
Response: See section 1.3 Variable and data
Difficulty: Medium
Learning Objective: 1.3: Explain the difference between variables, measurement, and data.

59. Which of the following statements is correct?

a) Business researchers rarely give attention to collecting meaningful data.
b) Variables are data that can be directly used for decision making.
c) Valid data are the lifeblood of business statistics.
d) Measurements never need to be defined by the business researcher.
e) Business statistics are extremely complex and hard to use for decision making.

Ans: c
Response: See section 1.3 Variable and data
Difficulty: Hard
Learning Objective: 1.3: Explain the difference between variables, measurement, and data.

60. The lowest level of data measurement is _____.

a) interval level
b) ordinal level
c) nominal level
d) ratio level
e) minimal level

Ans: c
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

61. Which of the following operations is meaningful for processing nominal data?

a) Addition
b) Multiplication
c) Ranking
d) Counting
e) Division

Ans: d
Response: See section 1.4 Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

62. Which scale of measurement has these two properties: linear distance is meaningful and the location of origin (or zero point) is arbitrary?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Minimal level

Ans: a
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

63. Which scale of measurement has these two properties: linear distance is meaningful and the location of origin (or zero point) is absolute (or natural)?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Relative level

Ans: d
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

64. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. One question on the survey asked the customers: "Which of the following best describes your primary business: a. manufacturing, b. wholesaler, c. retail, d. service." The measurement level for this question is _____.

a) interval level
b) ordinal level
c) nominal level
d) ratio level
e) relative level

Ans: c
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

65. A question in a survey of microcomputer users asked: "Which operating system do you use most often: a. Apple OS 7, b. MS DOS, c. MS Windows 95, d. UNIX." The measurement level for this question is _____.

a) nominal level
b) ordinal level
c) interval level
d) ratio level
e) relative level

Ans: a
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

66. Which of the following operations is meaningful for processing ordinal data, but is meaningless for processing nominal data?

a) Addition
b) Multiplication
c) Ranking
d) Counting
e) Division

Ans: c
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

67. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by surveying all 1,500 industrial customers. One question on the survey asked the customers: "How many people does your company employ? The measurement level for this question is _____.

a) interval level

b) ordinal level
c) nominal level
d) relative level
e) ratio level

Ans: e
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

68. A consumer has been asked to rank five cars based upon their desirability. This level of measurement is _____.

a) interval level
b) ordinal level
c) nominal level
d) ratio level
e) relative level

Ans: b
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

69. Morningstar Mutual Funds analyzes the risk and performance of mutual funds. Each mutual fund is assigned an overall rating of one to five stars. One star is the lowest rating, and five stars is the highest rating. This level of measurement is _____.

a) ordinal level
b) interval level
c) nominal level
d) ratio level
e) relative level

Ans: a
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

70. A level of data measurement that has an absolute zero is called _____.

a) interval level
b) ordinal level
c) nominal level
d) ratio level
e) relative level

Ans: d
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

71. A person has decided to code a particular set of sales data. A value of 0 is assigned if the sales occurred on a weekday, and a value of 1 means it happened on a weekend. This is an example of _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: c
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

72. Members of the accounting department's clerical staff were asked to rate their supervisor's leadership style as either (1) authoritarian or (2) participatory. This is an example of _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: c
Response: See section 1.4, Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

73. A market research analyst has asked consumers to rate the appearance of a new package on a scale of 1 to 5. A 1 means that the appearance is awful while a 5 means that it is excellent. The measurement level of this data is _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: b
Response: See section 1.4, Data Measurement
Difficulty: Easy

Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

74. The social security number of employees would be an example of what level of data measurement?

a) Interval level data
b) Ordinal level data
c) Nominal level data
d) Ratio level data
e) Relative level data

Ans: c
Response: See section 1.4, Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

75. Sales of a restaurant (in dollars) are an example of what level of data measurement?

a) Interval level data
b) Ordinal level data
c) Nominal level data
d) Ratio level data
e) Relative level data

Ans: d
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

76. Grades on a test range from 0 to 100. This level of data is _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: d
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

77. If it were not for the existence of an "absolute zero," ratio data would be considered the same as _____.

a) interval level data
b) ordinal level data

c) nominal level data
d) ratio level data
e) relative level data

Ans: a
Response: See section 1.4 Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

78. Scholastic Aptitude Test scores are an example of what type of measurement scale?

a) Interval level data
b) Ordinal level data
c) Nominal level data
d) Ratio level data
e) Relative level data

Ans: a
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

79. Which types of data are normally used in parametric statistics?
a) Interval or ratio level data
b) Ordinal or nominal level data
c) Nominal or ratio level data
d) Ratio or ordinal level data
e) Relative or ratio level data
Ans: a
Response: See section 1.4 Data Measurement
Difficulty: Hard
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

80. Which types of data are normally used with nonparametric statistics?

a) Interval or ratio level data
b) Ordinal or nominal level data
c) Nominal or ratio level data
d) Ratio or ordinal level data
e) Relative or ratio level data

Ans: b
Response: See section 1.4 Data Measurement
Difficulty: Hard
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

81. How much inventory do Christmas tree sales lots keep? A researcher goes from location to location around the city counting the number of trees in each lot. These numbers most likely represent what level of data?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Relative level

Ans: d
Response: See section 1.4 Basic Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

82. During the Valentine's season, different offices in a company are encouraged to decorate their doors. A committee then goes around and ranks the doors according to how well the doors are decorated. The best door gets a ranking of "1"; the second best gets a ranking of "2", etc. The numbers of these rankings represent which level of data?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Relative level

Ans: b
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

83. A large manufacturing company in Indianapolis produces valves for the chemical industry. According to specifications, one particular valve is supposed to have a five-inch opening on the side. Quality control inspectors take random samples of these valves just after the hole is bored. They measure the size of the hole in an effort to determine if the machine is out-of-adjustment. The measurement of the diameter of the hole represents which level of data?

a) Interval level
b) Ordinal level
c) Nominal level
d) Central level
e) Ratio level

Ans: e
Response: See section 1.4 Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

84. A marketing demographic survey is undertaken to determine the market potential for a new product. One of the questions asked is: What type of residence do you live in? Respondents are offered several possible answers including: house, apartment, or condominiums. In order to computerize the survey answers, the responses are coded as a 1 if the answer is "house", a 2 if the answer is an "apartment", and a 3 if the answer is a "condominium". These numbers, 1, 2, and 3, are examples of which level of data?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Relative level

Ans: c
Response: See section 1.4 Data Measurement
Difficulty: Medium
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

85. A marketing survey is conducted to ascertain the potentiality of several new products. A series of focus groups is used to conduct this survey. At the end of one of the sessions, the group members are asked to rank the remaining eight products in order of desirability. A one indicates the most favored product and an eight is awarded to the least desirable. These numbers are examples of which level of data?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Relative level

Ans: b
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

86. A business is attempting to find the best small town in the United States in which to relocate. As part of the investigation, the elevations of all small towns in the United States are researched. Some towns are located high in the Rockies with elevations over 8,000 feet. There are even some towns located in the south central valley of California with elevations below sea level. These elevations can best be described as which level of data?

a) Interval level
b) Ordinal level
c) Nominal level
d) Ratio level
e) Relative level

Ans: a

Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

87. A manager was asked to rate the performance of his employees on a scale of 1 to 6. A 1 means that the performance is awful while a 6 means that it is excellent. The measurement level of this data is _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: b
Response: See section 1.4 Data Measurement
Difficulty: Easy
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

88. One of the main ways to organize the study of statistics is to divide it in two branches. These two branches are _____ statistics and _____ statistics.

a) positive; normative
b) descriptive; normative
c) positive; inferential
d) descriptive; inferential
e) positive, macro

Ans: d
Response: See section 1.1 Statistics in Business
Difficulty: Easy
AACSB: Reflective thinking
Bloom's level: Knowledge
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

89. You are the owner of a camping site that has a small pond with fishes, and you want to know approximately the number of fishes currently in the pond. For this purpose, you catch 30 fishes and mark them with a special ink that will take a few days to be washed away. The ink doesn't affect the fishes in any way. The fishes are returned promptly to the pond after being marked. The next day at the same time of day you return and catch 30 fishes, and you find out that 5 of these fishes are marked.

a) This is an example of descriptive statistics, because you are describing the number of fishes in the pond.
b) This is not an example of statistics.
c) This is an example of inferential statistics, because you are inferring the population of fishes.
d) This could be either an example of descriptive or inferential statistics, depending on your procedure after you find out that 5 fishes are marked among the selected 30 on the second day.

e) This procedure would not allow you to estimate the population of fishes.

Ans: c
Response: See section 1.1 Statistics in Business
Difficulty: Hard
AACSB: Analytic
Bloom's level: Application
Learning Objective: 1.1: List quantitative and graphical examples of statistics within a business context.

90. You are the owner of a camping site and want to estimate the average age of your customers. For this purpose, you select a representative sample of your clients and offer them a discount good for their next visit as compensation for filling out a short questionnaire that includes relevant age intervals. The average age of your customers is:

a) a measurement
b) data
c) a statistic
d) a parameter
e) a census

Ans: d
Response: See section 1.2 Basic Statistical Concepts
Difficulty: Medium
AACSB: Reflective thinking
Bloom's level: Application
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

91. You are the owner of a camping site and want to estimate the average age of your customers. For this purpose, you select a representative sample of your clients and offer them a discount good for their next visit as compensation for filling out a short questionnaire that includes relevant age intervals. The average age of the customers who fill out the questionnaire is:

a) a measurement
b) data
c) a statistic
d) a parameter
e) a census

Ans: c
Response: See section 1.2 Basic Statistical Concepts
Difficulty: Medium
AACSB: Reflective thinking
Bloom's level: Application
Learning Objective: 1.2: define important statistical terms, including population, sample, and parameter, as they relate to descriptive and inferential statistics.

92. You are the owner of a camping site and want to estimate the average age of your customers. For this purpose, you select a representative sample of your clients and offer them a discount good for their next visit as compensation for filling out a short questionnaire that includes relevant age intervals: "Your age is (a) 30 or younger, (b) 30 to 40, (c) 40 to 50, (c) 50 to 60, (d) 60 or older. This is an example of _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: b
Response: See section 1.4 Data Measurement
Difficulty: Medium
AACSB: Reflective thinking
Bloom's level: Application
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

93. You are the owner of a camping site and want to estimate the level of customer satisfaction among your clients. For this purpose, you select a representative sample of your clients and offer them a discount good for their next visit as compensation for filling out a short questionnaire. One question specifically says, "How satisfied are you with your experience, on a scale from (1) to (5), where (1) is 'very dissatisfied' and (5) is 'very satisfied'?" This is an example of _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: b
Response: See section 1.4 Data Measurement
Difficulty: Easy
AACSB: Reflective thinking
Bloom's level: Application
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.

94. You are the owner of a camping site and want to evaluate the feasibility of opening earlier during the year. For this analysis, you obtain the average maximum and minimum local daily temperatures for early spring. This is an example of _____.

a) interval level data
b) ordinal level data
c) nominal level data
d) ratio level data
e) relative level data

Ans: a
Response: See section 1.4 Data Measurement
Difficulty: Medium
AACSB: Reflective thinking
Bloom's level: Application
Learning Objective: 1.4: Compare the four different levels of data: nominal, ordinal, interval, and ratio.