Chapter 01

What Is Statistics?

**True / False Questions**

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| 1. | A population is a collection of all individuals, objects, or measurements of interest.  True    False |

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| 2. | Statistics are used as a basis for making decisions.  True    False |

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| 3. | A listing of 100 family annual incomes is an example of statistics.  True    False |

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| 4. | The average number of passengers on commercial flights between Chicago and New York City is an example of a statistic.  True    False |

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| 5. | Statistics are used to report the summary results of market surveys.  True    False |

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| 6. | A sample is a portion or part of the population of interest.  True    False |

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| 7. | To infer something about a population, we usually take a sample from the population.  True    False |

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| 8. | Descriptive statistics are used to find out something about a population based on a sample.  True    False |

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| 9. | There are four levels of measurement: qualitative, quantitative, discrete, and continuous.  True    False |

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| 10. | The ordinal level of measurement is considered the "lowest" level of measurement.  True    False |

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| 11. | A store asks shoppers for their zip code to identify market areas. Zip codes are an example of ratio data.  True    False |

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| 12. | An ordinal level of measurement implies some sort of ranking.  True    False |

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| 13. | Data measured on a nominal scale can only be classified into categories.  True    False |

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| 14. | The terms descriptive statistics and inferential statistics can be used interchangeably.  True    False |

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| 15. | A marketing research agency was hired to test a new DVD player. Consumers rated it outstanding, very good, fair, or poor. The level of measurement for this experiment is ordinal.  True    False |

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| 16. | The Union of Electrical Workers of America with 9,128 members polled 362 members about a new wage package that will be submitted to management. The population is the 362 members.  True    False |

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| 17. | The CIA World Factbook cited these numbers for the United States:• The birthrate is 13.66 births per 1,000 population.• The average life expectancy for females is 81.17 years.• Approximately 316.7 million persons reside in the United States.Each of these numbers is referred to as a statistic.  True    False |

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| 18. | If we select 100 persons from 25,000 registered voters and question them about candidates and issues, the 100 persons are referred to as the population.  True    False |

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| 19. | Statistics is defined as a body of techniques used to facilitate the collection, organization, presentation, analysis, and interpretation of information for the purpose of making better decisions.  True    False |

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| 20. | Categorizing voters as Democrats, Republicans, and Independents is an example of interval level measurement.  True    False |

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| 21. | The order that runners finish in a race would be an example of continuous data.  True    False |

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| 22. | Based on a sample of 3,000 people, the civilian unemployment rate in the United States was 5.5%. 5.5% is referred to as a statistic.  True    False |

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| 23. | The principal difference between the interval and ratio scale is that the ratio scale has a meaningful zero point.  True    False |

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| 24. | The branch of mathematics used to facilitate the collection, organization, presentation, analysis, and interpretation of numerical information is referred to as statistics.  True    False |

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| 25. | The number of children in a family is a discrete variable.  True    False |

**Multiple Choice Questions**

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| 26. | The main purpose of descriptive statistics is to:

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| A.  | Summarize data in a useful and informative manner. |

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| B.  | Make inferences about a population. |

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| C.  | Determine if the data adequately represents the population. |

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| D.  | Gather or collect data. |

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| 27. | Which of the following is an example of a continuous variable?

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| A.  | Tons of concrete to complete a parking garage |

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| B.  | Number of students in a statistics class |

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| C.  | Zip codes of shoppers |

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| D.  | Rankings of baseball teams in a league |

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| 28. | The incomes of 50 loan applicants are obtained. Which level of measurement is income?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| D.  | Ratio |

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| 29. | When TV advertisements report "2 out of 3 dentists surveyed indicated they would recommend Brand X toothpaste to their patients," an informed consumer may question the conclusion because the:

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| A.  | Sample was only 5 dentists. |

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| B.  | Sample of dentists is clearly explained. |

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| C.  | Advertisement does not include the total number of dentists surveyed. |

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| D.  | Conclusion is not illustrated with a graph. |

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| 30. | A bank asks customers to evaluate the drive-thru service as good, average, or poor. Which level of measurement is this classification?

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| A.  | Nominal |

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| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

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| 31. | A portion or part of a population is called a:

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| A.  | Random survey |

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| B.  | Sample |

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| C.  | Tally |

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| D.  | Frequency distribution |

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| 32. | If Gallup, Harris, and other pollsters asked people to indicate their political party affiliation as Democrat, Republican, or Independent, the data gathered would be an example of which scale of measurement?

|  |  |
| --- | --- |
| A.  | Nominal |

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| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

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| 33. | The members of each basketball team wear numbers on their jerseys. What scale of measurement are these numbers considered?

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| A.  | Nominal |

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| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

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| 34. | A marketing class of 50 students evaluated the instructor using the following scale: superior, good, average, poor, and inferior. The descriptive summary showed the following survey results: 2% superior, 8% good, 45% average, 45% poor, and 0% inferior.

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| A.  | The instructor's performance was great! |

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| B.  | The instructor's performance was inferior. |

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| C.  | Most students rated the instructor as poor or average. |

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| D.  | No conclusions can be made. |

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| 35. | A survey includes a question regarding marital status that has the following responses: single, married, divorced, separated, or widowed. What is the scale of measurement for this question?

|  |  |
| --- | --- |
| A.  | Ratio |

|  |  |
| --- | --- |
| B.  | Interval |

|  |  |
| --- | --- |
| C.  | Ordinal |

|  |  |
| --- | --- |
| D.  | Nominal |

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| 36. | Respondents were asked, "Do you now earn more than or less than you did five years ago?" What is this level of measurement?

|  |  |
| --- | --- |
| A.  | Interval |

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| --- | --- |
| B.  | Ratio |

|  |  |
| --- | --- |
| C.  | Nominal |

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| --- | --- |
| D.  | Ordinal |

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| 37. | Which word is NOT part of the definition of descriptive statistics?

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| A.  | Organizing |

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| --- | --- |
| B.  | Analyzing |

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| --- | --- |
| C.  | Presenting |

|  |  |
| --- | --- |
| D.  | Predicting |

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| 38. | The reported unemployment is 5.5% of the population. What measurement scale is used to measure unemployment?

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| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval or ratio |

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| --- | --- |
| D.  | Descriptive |

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| 39. | The Equal Employment Opportunity Act requires employers to classify their employees by gender and national origin. Which level of measurement is this?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 40. | What level of measurement is the Centigrade temperature scale?

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| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 41. | What type of variable is the number of gallons of gasoline pumped by a filling station during a day?

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| --- | --- |
| A.  | Qualitative |

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| --- | --- |
| B.  | Continuous |

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| --- | --- |
| C.  | Attribute |

|  |  |
| --- | --- |
| D.  | Discrete |

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| 42. | The performance of personal and business investments is measured as a percentage, "return on investment." What type of variable is "return on investment"?

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| --- | --- |
| A.  | Qualitative |

|  |  |
| --- | --- |
| B.  | Continuous |

|  |  |
| --- | --- |
| C.  | Attribute |

|  |  |
| --- | --- |
| D.  | Discrete |

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| 43. | What type of variable is the number of robberies reported in your city?

|  |  |
| --- | --- |
| A.  | Attribute |

|  |  |
| --- | --- |
| B.  | Continuous |

|  |  |
| --- | --- |
| C.  | Quantitative |

|  |  |
| --- | --- |
| D.  | Qualitative |

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| 44. | What type of variable is the number of auto accidents reported in a given month?

|  |  |
| --- | --- |
| A.  | Interval |

|  |  |
| --- | --- |
| B.  | Ratio |

|  |  |
| --- | --- |
| C.  | Continuous |

|  |  |
| --- | --- |
| D.  | Discrete |

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| 45. | The names of the positions in a corporation, such as chief operating officer or controller, are examples of what type of variable?

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| --- | --- |
| A.  | Qualitative |

|  |  |
| --- | --- |
| B.  | Quantitative |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 46. | What type of variable is "pounds of popcorn" served at a movie theater?

|  |  |
| --- | --- |
| A.  | Interval |

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| --- | --- |
| B.  | Ratio |

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| --- | --- |
| C.  | Discrete |

|  |  |
| --- | --- |
| D.  | Continuous |

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| 47. | The final rankings of the top 20 NCAA college basketball teams are an example of which level of measurement?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 48. | Your height and weight are examples of which level of measurement?

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| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 49. | Shoe style is an example of what level of measurement?

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| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 50. | The general process of gathering, organizing, summarizing, analyzing, and interpreting data is called \_\_\_\_\_\_\_\_\_\_\_\_.

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| --- | --- |
| A.  | Statistics |

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| --- | --- |
| B.  | Descriptive statistics |

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| --- | --- |
| C.  | Inferential statistics |

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| --- | --- |
| D.  | Levels of measurement |

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| 51. | The Nielsen Ratings break down the number of people watching a particular television show by age. What level of measurement is age?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 52. | An example of a qualitative variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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| A.  | Number of children in a family |

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| B.  | Weight of a person |

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| C.  | Color of ink in a pen |

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| D.  | Miles between oil changes |

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| 53. | Which one of the following is NOT an example of discrete data?

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| --- | --- |
| A.  | Number of households watching the Home Shopping Network |

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| --- | --- |
| B.  | Number of employees reporting in sick |

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| --- | --- |
| C.  | Number of miles between New York City and Chicago |

|  |  |
| --- | --- |
| D.  | Number of members of the Denver Lions Club |

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| 54. | What level of measurement is a person's "favorite sport"?

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| --- | --- |
| A.  | Ratio |

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| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Nominal |

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| 55. | A group of women tried five brands of fingernail polish and ranked them according to preference. What level of measurement is this?

|  |  |
| --- | --- |
| A.  | Nominal |

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| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

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| 56. | A university wishes to conduct a student survey. In one of the questions students are asked to mark their gender as either male or female. Gender is an example of the:

|  |  |
| --- | --- |
| A.  | Ordinal scale |

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| --- | --- |
| B.  | Nominal scale |

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| --- | --- |
| C.  | Ratio scale |

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| --- | --- |
| D.  | Interval scale |

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| 57. | Income is a variable often used in business and economics. Income is an example of a variable that uses the:

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| --- | --- |
| A.  | Ordinal scale |

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| --- | --- |
| B.  | Nominal scale |

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| --- | --- |
| C.  | Ratio scale |

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| --- | --- |
| D.  | Interval scale |

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| 58. | When statisticians analyze sample data in order to draw conclusions about the characteristics of a population, this is referred to as:

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| A.  | Descriptive statistics |

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| --- | --- |
| B.  | Statistical inference |

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| --- | --- |
| C.  | Data analysis |

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| --- | --- |
| D.  | Data summarization |

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| 59. | The length of a bridge, measured in meters, is an example of:

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| A.  | Categorical data |

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| --- | --- |
| B.  | Either categorical or quantitative data |

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| --- | --- |
| C.  | Measurement data |

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| --- | --- |
| D.  | Quantitative data |

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**Fill in the Blank Questions**

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| 60. | The monthly consumer price index is called a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 61. | A variable such as eye color is also referred to as a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_ variable.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 62. | A scale used to measure a quantitative variable is either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 63. | Ranked data is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_ level of measurement.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 64. | The prime rate of interest is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ level of measurement.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 65. | The branch of statistics that does not involve generalizations is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 66. | When we make an estimate or prediction, we use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 67. | The branch of statistics that collects, analyzes, and presents data is called \_\_\_\_\_\_\_\_\_\_\_\_\_ statistics.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 68. | The branch of statistics that uses sample information to make conclusions about a population is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ statistics.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 69. | The number of workers calling in sick during any particular week is considered to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ data.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 70. | If we test a small number of light bulbs from a large group, the small group is called a \_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 71. | Among the many classes held at your college or university, your statistics class has been selected for a study. This one class is referred to as a \_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 72. | The "lowest" level of measurement is \_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 73. | The "highest" level of measurement is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 74. | The major advantage of ordinal data over nominal data is that it allows for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 75. | The principal difference between the interval and ratio scale of measurement is that the ratio scale has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 76. | Categorizing students as freshmen, sophomores, juniors, and seniors is an example of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ level of measurement.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 77. | The collection of all possible objects of interest is referred to as the \_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 78. | The lowest level of measurement that has some sort of ranking is \_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 79. | A variable that can have any value within a specific range is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 80. | The science of collecting, organizing, presenting, analyzing, and interpreting data is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Essay Questions**

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| 81. | Describe the difference between a population and a sample.      |

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| 82. | A New York newspaper reported the average gasoline prices in four metropolitan areas and used a bar chart to illustrate the differences. What type of statistics was shown? What activities did the newspaper use to make the report?      |

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| 83. | A company was studying the demographics of their customers. As part of the study, they collected the following variables: gender, marital status, credit rating (low, medium, high), annual income, and age. Label each variable as qualitative or quantitative, discrete or continuous, and nominal, ordinal, interval, or ratio.      |

Chapter 01 What Is Statistics? Answer Key

**True / False Questions**

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| 1. | A population is a collection of all individuals, objects, or measurements of interest.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 2. | Statistics are used as a basis for making decisions.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-01 Explain why knowledge of statistics is important.Topic: Why Study Statistics?* |

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| 3. | A listing of 100 family annual incomes is an example of statistics.  **FALSE**A listing of incomes is raw data. Statistics is used to organize, summarize, and present the data. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 4. | The average number of passengers on commercial flights between Chicago and New York City is an example of a statistic.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 5. | Statistics are used to report the summary results of market surveys.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 6. | A sample is a portion or part of the population of interest.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 7. | To infer something about a population, we usually take a sample from the population.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 8. | Descriptive statistics are used to find out something about a population based on a sample.  **FALSE**Inferential statistics uses sample information to find out something about a population. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 9. | There are four levels of measurement: qualitative, quantitative, discrete, and continuous.  **FALSE**The four levels of measurement are nominal, ordinal, interval, and ratio. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 10. | The ordinal level of measurement is considered the "lowest" level of measurement.  **FALSE**The nominal scale is the "lowest" level of measurement. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 11. | A store asks shoppers for their zip code to identify market areas. Zip codes are an example of ratio data.  **FALSE**While zip codes use numbers, they are only labels. Therefore they represent a nominal measurement scale. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 12. | An ordinal level of measurement implies some sort of ranking.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 13. | Data measured on a nominal scale can only be classified into categories.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 14. | The terms descriptive statistics and inferential statistics can be used interchangeably.  **FALSE**Descriptive statistics are used to organize, summarize, and present data. Inferential statistics uses sample information to make inferences about a population. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 15. | A marketing research agency was hired to test a new DVD player. Consumers rated it outstanding, very good, fair, or poor. The level of measurement for this experiment is ordinal.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 16. | The Union of Electrical Workers of America with 9,128 members polled 362 members about a new wage package that will be submitted to management. The population is the 362 members.  **FALSE**The 362 members are a sample or portion of the population of 9,128 union members. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 17. | The CIA World Factbook cited these numbers for the United States:• The birthrate is 13.66 births per 1,000 population.• The average life expectancy for females is 81.17 years.• Approximately 316.7 million persons reside in the United States.Each of these numbers is referred to as a statistic.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 18. | If we select 100 persons from 25,000 registered voters and question them about candidates and issues, the 100 persons are referred to as the population.  **FALSE**The 100 people are a sample or portion of the population of 25,000 registered voters. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 19. | Statistics is defined as a body of techniques used to facilitate the collection, organization, presentation, analysis, and interpretation of information for the purpose of making better decisions.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 20. | Categorizing voters as Democrats, Republicans, and Independents is an example of interval level measurement.  **FALSE**Political party is a label that corresponds to a nominal level of measurement. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: ApplyDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 21. | The order that runners finish in a race would be an example of continuous data.  **FALSE**The order that runners finish a race is an example of an ordinal level of measurement and is discrete data. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 22. | Based on a sample of 3,000 people, the civilian unemployment rate in the United States was 5.5%. 5.5% is referred to as a statistic.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 23. | The principal difference between the interval and ratio scale is that the ratio scale has a meaningful zero point.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: AnalyzeDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 24. | The branch of mathematics used to facilitate the collection, organization, presentation, analysis, and interpretation of numerical information is referred to as statistics.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 25. | The number of children in a family is a discrete variable.  **TRUE** |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

**Multiple Choice Questions**

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| 26. | The main purpose of descriptive statistics is to:

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| **A.**  | Summarize data in a useful and informative manner. |

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| B.  | Make inferences about a population. |

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| C.  | Determine if the data adequately represents the population. |

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| D.  | Gather or collect data. |

Descriptive statistics summarizes existing data. It does not collect new data, nor draw conclusions about a population. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 27. | Which of the following is an example of a continuous variable?

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| **A.**  | Tons of concrete to complete a parking garage |

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| B.  | Number of students in a statistics class |

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| C.  | Zip codes of shoppers |

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| D.  | Rankings of baseball teams in a league |

A continuous variable assumes any value within a range. Number of students, zip codes, and rankings have "gaps" between the values and hence are not continuous. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 28. | The incomes of 50 loan applicants are obtained. Which level of measurement is income?

|  |  |
| --- | --- |
| A.  | Nominal |

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| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

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| **D.**  | Ratio |

Incomes are measured on a ratio scale because the variable has a zero point (no income) and the ratio between two values is meaningful. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 29. | When TV advertisements report "2 out of 3 dentists surveyed indicated they would recommend Brand X toothpaste to their patients," an informed consumer may question the conclusion because the:

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| A.  | Sample was only 5 dentists. |

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| B.  | Sample of dentists is clearly explained. |

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| **C.**  | Advertisement does not include the total number of dentists surveyed. |

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| D.  | Conclusion is not illustrated with a graph. |

The ad implies that most dentists would recommend the product. However, without knowing anything about how many dentists were selected, and how they were selected, it would be difficult to accept the results of the survey. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 30. | A bank asks customers to evaluate the drive-thru service as good, average, or poor. Which level of measurement is this classification?

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| --- | --- |
| A.  | Nominal |

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| --- | --- |
| **B.**  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

Ordinal is the correct answer because a "good" response is better than an "average" one. However, the difference between the responses is not a constant size. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 31. | A portion or part of a population is called a:

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| A.  | Random survey |

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| **B.**  | Sample |

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| C.  | Tally |

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| D.  | Frequency distribution |

A sample is a subset of a population of interest. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 32. | If Gallup, Harris, and other pollsters asked people to indicate their political party affiliation as Democrat, Republican, or Independent, the data gathered would be an example of which scale of measurement?

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| --- | --- |
| **A.**  | Nominal |

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| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

Political party affiliation is measured with a label or name and therefore is nominal. It is a categorization with no natural order and cannot be ranked or ordered. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 33. | The members of each basketball team wear numbers on their jerseys. What scale of measurement are these numbers considered?

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| --- | --- |
| **A.**  | Nominal |

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| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

Jersey numbers are labels for identification purposes only. It is a label with no natural order and cannot be ranked or ordered. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 34. | A marketing class of 50 students evaluated the instructor using the following scale: superior, good, average, poor, and inferior. The descriptive summary showed the following survey results: 2% superior, 8% good, 45% average, 45% poor, and 0% inferior.

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| A.  | The instructor's performance was great! |

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| B.  | The instructor's performance was inferior. |

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| **C.**  | Most students rated the instructor as poor or average. |

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| D.  | No conclusions can be made. |

The percentages indicate that 90% of the 50 students rated the instructor as average or poor. No students rated the instructor as inferior. "Great" was not measured. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: AnalyzeDifficulty: 2 MediumLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 35. | A survey includes a question regarding marital status that has the following responses: single, married, divorced, separated, or widowed. What is the scale of measurement for this question?

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| --- | --- |
| A.  | Ratio |

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| --- | --- |
| B.  | Interval |

|  |  |
| --- | --- |
| C.  | Ordinal |

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| --- | --- |
| **D.**  | Nominal |

Marital status is a nominal because it has no natural order and cannot be ranked or ordered. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 36. | Respondents were asked, "Do you now earn more than or less than you did five years ago?" What is this level of measurement?

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| --- | --- |
| A.  | Interval |

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| --- | --- |
| B.  | Ratio |

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| --- | --- |
| C.  | Nominal |

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| --- | --- |
| **D.**  | Ordinal |

The survey asks for a relative measure of income today in comparison to five years ago. The response is either "more" or "less." There is no absolute measure of income to compute how much more or less is earned. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 37. | Which word is NOT part of the definition of descriptive statistics?

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| A.  | Organizing |

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| B.  | Analyzing |

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| C.  | Presenting |

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| **D.**  | Predicting |

Descriptive statistics does not predict or make inferences about the future. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 2 MediumLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 38. | The reported unemployment is 5.5% of the population. What measurement scale is used to measure unemployment?

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| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| **C.**  | Interval or ratio |

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| --- | --- |
| D.  | Descriptive |

Unemployment percentages have a zero point (no unemployment) and the ratio between two values is meaningful. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 39. | The Equal Employment Opportunity Act requires employers to classify their employees by gender and national origin. Which level of measurement is this?

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| --- | --- |
| **A.**  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

Gender and national origin are labels with no natural order and cannot be ranked or ordered. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 40. | What level of measurement is the Centigrade temperature scale?

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| A.  | Nominal |

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| --- | --- |
| B.  | Ordinal |

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| --- | --- |
| **C.**  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

Temperature can be ranked and the distance between temperatures can be computed, but there is no natural value of zero on the centigrade scale. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 41. | What type of variable is the number of gallons of gasoline pumped by a filling station during a day?

|  |  |
| --- | --- |
| A.  | Qualitative |

|  |  |
| --- | --- |
| **B.**  | Continuous |

|  |  |
| --- | --- |
| C.  | Attribute |

|  |  |
| --- | --- |
| D.  | Discrete |

The number of gallons pumped is a numerical variable that can assume any value within a range. There are no "gaps" in the scale. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 42. | The performance of personal and business investments is measured as a percentage, "return on investment." What type of variable is "return on investment"?

|  |  |
| --- | --- |
| A.  | Qualitative |

|  |  |
| --- | --- |
| **B.**  | Continuous |

|  |  |
| --- | --- |
| C.  | Attribute |

|  |  |
| --- | --- |
| D.  | Discrete |

"Return on investment" can assume any value within a range. There are no "gaps" in the scale. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 43. | What type of variable is the number of robberies reported in your city?

|  |  |
| --- | --- |
| A.  | Attribute |

|  |  |
| --- | --- |
| B.  | Continuous |

|  |  |
| --- | --- |
| **C.**  | Quantitative |

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| --- | --- |
| D.  | Qualitative |

The number of robberies is counted and must be a whole number, such as 0, 500, or 3,125,874. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 44. | What type of variable is the number of auto accidents reported in a given month?

|  |  |
| --- | --- |
| A.  | Interval |

|  |  |
| --- | --- |
| B.  | Ratio |

|  |  |
| --- | --- |
| C.  | Continuous |

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| --- | --- |
| **D.**  | Discrete |

The number of auto accidents is counted and must be a whole number, such as 0, 500, or 3,125,874. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 45. | The names of the positions in a corporation, such as chief operating officer or controller, are examples of what type of variable?

|  |  |
| --- | --- |
| **A.**  | Qualitative |

|  |  |
| --- | --- |
| B.  | Quantitative |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| D.  | Ratio |

The variable, job title, is qualitative. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. | What type of variable is "pounds of popcorn" served at a movie theater?

|  |  |
| --- | --- |
| A.  | Interval |

|  |  |
| --- | --- |
| B.  | Ratio |

|  |  |
| --- | --- |
| C.  | Discrete |

|  |  |
| --- | --- |
| **D.**  | Continuous |

"Pounds of popcorn" can assume any value within a range. There are no "gaps" in the scale. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 47. | The final rankings of the top 20 NCAA college basketball teams are an example of which level of measurement?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| **B.**  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

While the rankings indicate which team is better than another, they do not measure how much better a team is relative to another. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 48. | Your height and weight are examples of which level of measurement?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

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| --- | --- |
| **D.**  | Ratio |

Height and weight are ratio variables that have a zero point, and the ratio between two values is meaningful. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. | Shoe style is an example of what level of measurement?

|  |  |
| --- | --- |
| **A.**  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

Shoe style is a nominal variable because it is a label with no natural order and cannot be ranked or ordered. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 50. | The general process of gathering, organizing, summarizing, analyzing, and interpreting data is called \_\_\_\_\_\_\_\_\_\_\_\_.

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| --- | --- |
| **A.**  | Statistics |

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| --- | --- |
| B.  | Descriptive statistics |

|  |  |
| --- | --- |
| C.  | Inferential statistics |

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| --- | --- |
| D.  | Levels of measurement |

Statistics is the science of collecting, organizing, presenting, analyzing, and interpreting data to assist in making more effective decisions. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: RememberDifficulty: 2 MediumLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 51. | The Nielsen Ratings break down the number of people watching a particular television show by age. What level of measurement is age?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| **D.**  | Ratio |

Age is a ratio variable because it has a zero point, and the ratio between two values is meaningful. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 52. | An example of a qualitative variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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| --- | --- |
| A.  | Number of children in a family |

|  |  |
| --- | --- |
| B.  | Weight of a person |

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| --- | --- |
| **C.**  | Color of ink in a pen |

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| --- | --- |
| D.  | Miles between oil changes |

Color is a qualitative variable because it is an attribute that can be observed but not measured. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 53. | Which one of the following is NOT an example of discrete data?

|  |  |
| --- | --- |
| A.  | Number of households watching the Home Shopping Network |

|  |  |
| --- | --- |
| B.  | Number of employees reporting in sick |

|  |  |
| --- | --- |
| **C.**  | Number of miles between New York City and Chicago |

|  |  |
| --- | --- |
| D.  | Number of members of the Denver Lions Club |

Discrete variables can assume only certain values and there are "gaps" between the values. Miles is not discrete because it can be measured with any number of decimal points. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 54. | What level of measurement is a person's "favorite sport"?

|  |  |
| --- | --- |
| A.  | Ratio |

|  |  |
| --- | --- |
| B.  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

|  |  |
| --- | --- |
| **D.**  | Nominal |

The variable, person's "favorite sport," is a label with no natural order and cannot be ranked or ordered. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 55. | A group of women tried five brands of fingernail polish and ranked them according to preference. What level of measurement is this?

|  |  |
| --- | --- |
| A.  | Nominal |

|  |  |
| --- | --- |
| **B.**  | Ordinal |

|  |  |
| --- | --- |
| C.  | Interval |

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| --- | --- |
| D.  | Ratio |

The rankings are ordinal. While the rankings indicate which brand is preferred over another, they do not measure how much more they are preferred. |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 56. | A university wishes to conduct a student survey. In one of the questions students are asked to mark their gender as either male or female. Gender is an example of the:

|  |  |
| --- | --- |
| A.  | Ordinal scale |

|  |  |
| --- | --- |
| **B.**  | Nominal scale |

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| --- | --- |
| C.  | Ratio scale |

|  |  |
| --- | --- |
| D.  | Interval scale |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 57. | Income is a variable often used in business and economics. Income is an example of a variable that uses the:

|  |  |
| --- | --- |
| A.  | Ordinal scale |

|  |  |
| --- | --- |
| B.  | Nominal scale |

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| --- | --- |
| **C.**  | Ratio scale |

|  |  |
| --- | --- |
| D.  | Interval scale |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 58. | When statisticians analyze sample data in order to draw conclusions about the characteristics of a population, this is referred to as:

|  |  |
| --- | --- |
| A.  | Descriptive statistics |

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| --- | --- |
| **B.**  | Statistical inference |

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| --- | --- |
| C.  | Data analysis |

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| --- | --- |
| D.  | Data summarization |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 59. | The length of a bridge, measured in meters, is an example of:

|  |  |
| --- | --- |
| A.  | Categorical data |

|  |  |
| --- | --- |
| B.  | Either categorical or quantitative data |

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| --- | --- |
| C.  | Measurement data |

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| --- | --- |
| **D.**  | Quantitative data |

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| *AACSB: CommunicationAccessibility: Keyboard NavigationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

**Fill in the Blank Questions**

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| 60. | The monthly consumer price index is called a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **statistic**Descriptive Statistics Summarize and Present Information.The consumer price index is a statistic that summarizes the rate of inflation. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

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| 61. | A variable such as eye color is also referred to as a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_ variable.  **qualitative**Qualitative variables measure observable attributes such as eye color. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 62. | A scale used to measure a quantitative variable is either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **interval; ratio**Quantitative variables are continuous. Therefore, an interval or ratio scale is used to measure them. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 63. | Ranked data is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_ level of measurement.  **ordinal**Ranked data is ordinal. Rankings indicate which item is "higher" or "better" than another. They do not measure how much more of them there are. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 64. | The prime rate of interest is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ level of measurement.  **ratio**The prime rate of interest is measured on a ratio scale because it has a zero point, and the ratio between two values is meaningful. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| --- | --- |
| 65. | The branch of statistics that does not involve generalizations is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **descriptive statistics**Inferential statistics are the methods used to make generalizations about a population on the basis of a sample. Descriptive statistics are the methods of organizing, summarizing, and presenting data in an informative way. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 66. | When we make an estimate or prediction, we use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **inferential statistics**Inferential statistics are the methods used to estimate a property of a population on the basis of a sample. Descriptive statistics are the methods of organizing, summarizing, and presenting data in an informative way. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| --- | --- |
| 67. | The branch of statistics that collects, analyzes, and presents data is called \_\_\_\_\_\_\_\_\_\_\_\_\_ statistics.  **descriptive**Descriptive statistics are the methods of organizing, summarizing, and presenting data in an informative way. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 68. | The branch of statistics that uses sample information to make conclusions about a population is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ statistics.  **inferential**Inferential statistics are the methods used to estimate a property of a population on the basis of a sample. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 69. | The number of workers calling in sick during any particular week is considered to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ data.  **discrete**The variable "number of sick workers" is counted and can assume only certain values. There are "gaps" between the values. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 70. | If we test a small number of light bulbs from a large group, the small group is called a \_\_\_\_\_\_\_\_\_\_\_\_.  **sample**The selection of a subgroup from a large group of light bulbs is a sample because it is only a portion, or part, of the population of interest. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 2 MediumLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 71. | Among the many classes held at your college or university, your statistics class has been selected for a study. This one class is referred to as a \_\_\_\_\_\_\_\_\_\_\_\_.  **sample**The selected class is a sample because it is only a portion, or part, of the population of all classes held at your college or university. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 72. | The "lowest" level of measurement is \_\_\_\_\_\_\_\_\_\_\_.  **nominal**Nominal-level data is based on the observation of attributes like color or gender. No mathematical operations can be applied to nominal variables. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 73. | The "highest" level of measurement is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **ratio**Ratio-level data has a zero point and is measured on a continuous scale. All mathematical operations can be applied to data measured on a ratio scale. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 74. | The major advantage of ordinal data over nominal data is that it allows for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **ranking or ordering**Ordinal data can be ranked or ordered. Nominal data are labels or attributes that do not have any logical order. |

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| *AACSB: CommunicationBlooms: AnalyzeDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 75. | The principal difference between the interval and ratio scale of measurement is that the ratio scale has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **meaningful zero point**The difference is that ratio-level data has a zero point. Therefore, the ratio between two numbers is meaningful. |

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| *AACSB: CommunicationBlooms: AnalyzeDifficulty: 2 MediumLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 76. | Categorizing students as freshmen, sophomores, juniors, and seniors is an example of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ level of measurement.  **ordinal**The class ranks can be ranked or ordered, but the distance between successive classes is not meaningful. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 77. | The collection of all possible objects of interest is referred to as the \_\_\_\_\_\_\_\_\_\_\_\_.  **population**A population is the entire set of individuals or objects of interest. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 2 MediumLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 78. | The lowest level of measurement that has some sort of ranking is \_\_\_\_\_\_\_\_\_\_.  **ordinal**Ordinal-level data can only be ranked. No mathematical operations can be applied to ordinal data. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of Measurement* |

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| 79. | A variable that can have any value within a specific range is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **continuous**A continuous variable can assume any value within a specified range. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Topic: Types of Variables* |

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| 80. | The science of collecting, organizing, presenting, analyzing, and interpreting data is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **statistics**Descriptive statistics are the methods of organizing, summarizing, and presenting data in an informative way. |

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| *AACSB: CommunicationBlooms: RememberDifficulty: 1 EasyLearning Objective: 01-02 Define statistics and provide an example of how statistics is applied.Topic: What is Meant by Statistics?* |

**Essay Questions**

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| 81. | Describe the difference between a population and a sample.  A population is the entire set of individuals or objects that could be observed or measured. A sample is a subset or portion of a population. |

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| *AACSB: CommunicationBlooms: AnalyzeDifficulty: 1 EasyLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 82. | A New York newspaper reported the average gasoline prices in four metropolitan areas and used a bar chart to illustrate the differences. What type of statistics was shown? What activities did the newspaper use to make the report?  The newspaper used descriptive statistics. The statistical techniques used to make the report were collecting data, summarizing the data, and presenting the data. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-03 Differentiate between descriptive and inferential statistics.Topic: Types of Statistics* |

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| 83. | A company was studying the demographics of their customers. As part of the study, they collected the following variables: gender, marital status, credit rating (low, medium, high), annual income, and age. Label each variable as qualitative or quantitative, discrete or continuous, and nominal, ordinal, interval, or ratio.  Gender: qualitative, discrete, nominal;Marital status: qualitative, discrete, nominal;Credit rating: qualitative, discrete, ordinal;Annual income: quantitative, continuous, ratio;Age: quantitative, continuous, ratio. |

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| *AACSB: CommunicationBlooms: UnderstandDifficulty: 2 MediumLearning Objective: 01-04 Classify variables as qualitative or quantitative; and discrete or continuous.Learning Objective: 01-05 Distinguish between nominal; ordinal; interval; and ratio levels of measurement.Topic: Levels of MeasurementTopic: Types of Variables* |