

Statistics for Managers Using Microsoft Excel, 7e (Levine)
Chapter 2 Organizing and Visualizing Data

1) A summary measure that is computed to describe a characteristic from only a sample of the population is called

- A) an ordered array.
- B) a summary table.
- C) a statistic.
- D) a parameter.

Answer: C

Difficulty: Easy

Keywords: statistic

2) A summary measure that is computed to describe a characteristic of an entire population is called

- A) a parameter.
- B) an ordered array.
- C) a statistic.
- D) a summary table.

Answer: A

Difficulty: Easy

Keywords: parameter

3) Which of the following is most likely a parameter as opposed to a statistic?

- A) the average score of the first five students completing an assignment
- B) the proportion of females registered to vote in a county
- C) the average height of people randomly selected from a database
- D) the proportion of trucks stopped yesterday that were cited for bad brakes

Answer: B

Difficulty: Moderate

Keywords: parameter, statistic

4) The chancellor of a major university was concerned about alcohol abuse on her campus and wanted to find out the proportion of students at her university who visited campus bars on the weekend before the final exam week. Her assistant took a random sample of 250 students and computed the portion of students in the sample who visited campus bars on the weekend before the final exam. The portion of all students at her university who visited campus bars on the weekend before the final exam week is an example of

- A) a summary table.
- B) an ogive.
- C) a parameter.
- D) a statistic.

Answer: C

Difficulty: Moderate

Keywords: parameter

5) The chancellor of a major university was concerned about alcohol abuse on her campus and wanted to find out the proportion of students at her university who visited campus bars on the weekend before the final exam week. Her assistant took a random sample of 250 students. The portion of students in the sample who visited campus bars on the weekend before the final exam week is an example of

- A) a summary table.
- B) an ogive.
- C) a parameter.
- D) a statistic

Answer: D

Difficulty: Moderate

Keywords: statistic

6) True or False: A statistic is usually used to provide an estimate for a usually unobserved parameter.

Answer: TRUE

Difficulty: Moderate

Keywords: statistic, parameter, inferential statistic

7) True or False: A statistic is usually unobservable while a parameter is usually observable.

Answer: FALSE

Difficulty: Moderate

Keywords: statistic, parameter, inferential statistic

8) The Human Resources Director of a large corporation wishes to develop an employee benefits package and decides to select 500 employees from a list of all ($N = 40,000$) workers in order to study their preferences for the various components of a potential package. The Director will use the data from the sample to compute _____.

Answer: statistics

Difficulty: Easy

Keywords: statistic

9) The Human Resources Director of a large corporation wishes to develop an employee benefits package and decides to select 500 employees from a list of all ($N = 40,000$) workers in order to study their preferences for the various components of a potential package. Information obtained from the sample will be used to draw conclusions about the true population _____.

Answer: parameters

Difficulty: Easy

Keywords: parameter

10) The oranges grown in corporate farms in an agricultural state were damaged by some unknown fungi a few years ago. Suppose the manager of a large farm wanted to study the impact of the fungi on the orange crops on a daily basis over a 6-week period. On each day a random sample of orange trees was selected from within a random sample of acres. The daily average number of damaged oranges per tree and the proportion of trees having damaged oranges were calculated. The two main measures calculated each day (i.e., average number of damaged oranges per tree and proportion of trees having damaged oranges) are called _____.

Answer: statistics

Difficulty: Moderate

Keywords: statistic

11) The oranges grown in corporate farms in an agricultural state were damaged by some unknown fungi a few years ago. Suppose the manager of a large farm wanted to study the impact of the fungi on the orange crops on a daily basis over a 6-week period. On each day a random sample of orange trees was selected from within a random sample of acres. The daily average number of damaged oranges per tree and the proportion of trees having damaged oranges were calculated. The two main measures calculated each day (i.e., average number of damaged oranges per tree and proportion of trees having damaged oranges) may be used on a daily basis to estimate the respective true population _____.

Answer: parameters

Difficulty: Easy

Keywords: parameters

12) The Quality Assurance Department of a large urban hospital is attempting to monitor and evaluate patient satisfaction with hospital services. Prior to discharge, a random sample of patients is asked to fill out a questionnaire to rate such services as medical care, nursing, therapy, laboratory, food, and cleaning. The Quality Assurance Department prepares weekly reports that are presented at the Board of Directors meetings and extraordinary/atypical ratings are easy to flag. Values computed from the sample results each week are called _____.

Answer: statistics

Difficulty: Easy

Keywords: statistic

13) The Quality Assurance Department of a large urban hospital is attempting to monitor and evaluate patient satisfaction with hospital services. Prior to discharge, a random sample of patients is asked to fill out a questionnaire to rate such services as medical care, nursing, therapy, laboratory, food, and cleaning. The Quality Assurance Department prepares weekly reports that are presented at the Board of Directors meetings and extraordinary/atypical ratings are easy to flag. True population characteristics estimated from the sample results each week are called _____.

Answer: parameters

Difficulty: Easy

Keywords: parameter

14) The Commissioner of Health in New York State wanted to study malpractice litigation in New York. A sample of 31 thousand medical records was drawn from a population of 2.7 million patients who were discharged during 2010. The proportion of malpractice claims filed from the sample of 31 thousand patients is a _____.

Answer: statistic

Difficulty: Moderate

Keywords: statistic

15) The Commissioner of Health in New York State wanted to study malpractice litigation in New York. A sample of 31 thousand medical records was drawn from a population of 2.7 million patients who were discharged during 2010. The true proportion of malpractice claims filed from the population of 2.7 million patients is a _____.

Answer: parameter

Difficulty: Easy

Keywords: parameter

TABLE 2-1

An insurance company evaluates many numerical variables about a person before deciding on an appropriate rate for automobile insurance. A representative from a local insurance agency selected a random sample of insured drivers and recorded, X , the number of claims each made in the last 3 years, with the following results.

| <u>X</u> | <u>f</u> |
|-----------------------|-----------------------|
| 1 | 14 |
| 2 | 18 |
| 3 | 12 |
| 4 | 5 |
| 5 | 1 |

16) Referring to Table 2-1, how many drivers are represented in the sample?

- A) 5
- B) 15
- C) 18
- D) 50

Answer: D

Difficulty: Easy

Keywords: frequency distribution

17) Referring to Table 2-1, how many total claims are represented in the sample?

- A) 15
- B) 50
- C) 111
- D) 250

Answer: C

Difficulty: Moderate

Keywords: interpretation, frequency distribution

18) A type of vertical bar chart in which the categories are plotted in the descending rank order of the magnitude of their frequencies is called a

- A) contingency table.
- B) Pareto chart.
- C) stem-and-leaf display.
- D) pie chart.

Answer: B

Difficulty: Easy

Keywords: Pareto chart

TABLE 2-2

At a meeting of information systems officers for regional offices of a national company, a survey was taken to determine the number of employees the officers supervise in the operation of their departments, where X is the number of employees overseen by each information systems officer.

| <u>X</u> | <u>f</u> |
|-----------------------|-----------------------|
| 1 | 7 |
| 2 | 5 |
| 3 | 11 |
| 4 | 8 |
| 5 | 9 |

19) Referring to Table 2-2, how many regional offices are represented in the survey results?

- A) 5
- B) 11
- C) 15
- D) 40

Answer: D

Difficulty: Easy

Keywords: interpretation, frequency distribution

20) Referring to Table 2-2, across all of the regional offices, how many total employees were supervised by those surveyed?

- A) 15
- B) 40
- C) 127
- D) 200

Answer: C

Difficulty: Moderate

Keywords: interpretation, frequency distribution

21) The width of each bar in a histogram corresponds to the

- A) differences between the boundaries of the class.
- B) number of observations in each class.
- C) midpoint of each class.
- D) percentage of observations in each class.

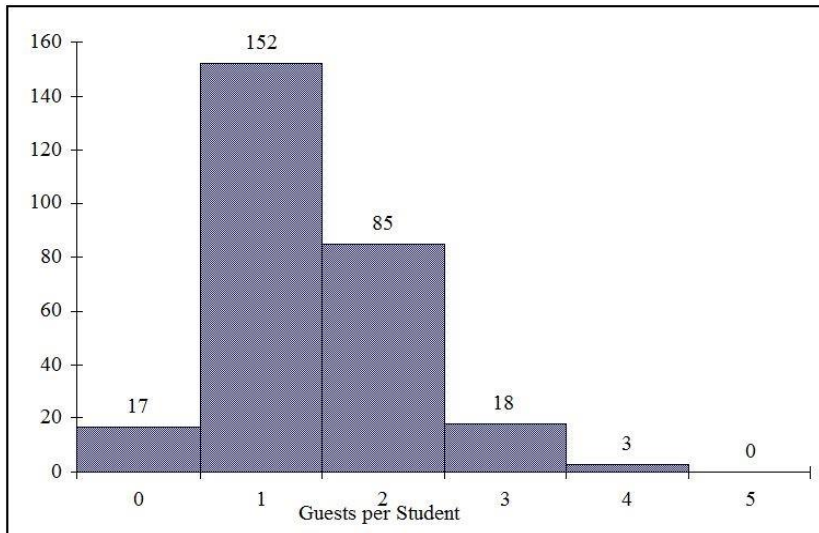
Answer: A

Difficulty: Easy

Keywords: frequency distribution

TABLE 2-3

Every spring semester, the School of Business coordinates a luncheon with local business leaders for graduating seniors, their families, and friends. Corporate sponsorship pays for the lunches of each of the seniors, but students have to purchase tickets to cover the cost of lunches served to guests they bring with them. The following histogram represents the attendance at the senior luncheon, where X is the number of guests each graduating senior invited to the luncheon and f is the number of graduating seniors in each category.



22) Referring to the histogram from Table 2-3, how many graduating seniors attended the luncheon?

- A) 4
- B) 152
- C) 275
- D) 388

Answer: C

Explanation: C) The number of graduating seniors is the sum of all the frequencies, f .

Difficulty: Difficult

Keywords: interpretation, histogram

23) Referring to the histogram from Table 2-3, if all the tickets purchased were used, how many guests attended the luncheon?

- A) 4
- B) 152
- C) 275
- D) 388

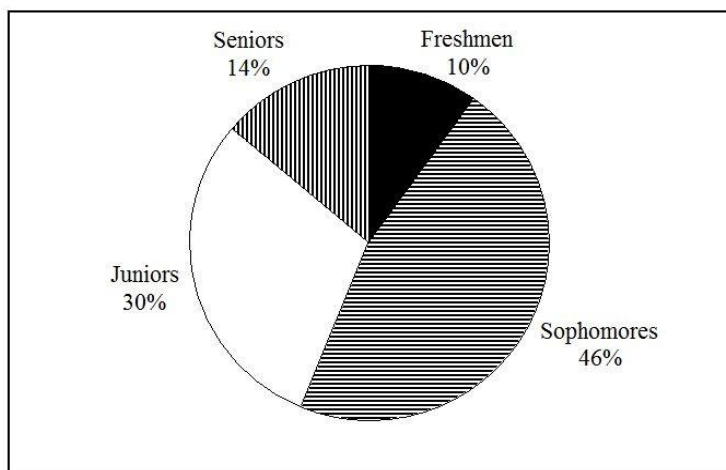
Answer: D

Explanation: D) The total number of guests is $\sum_{i=1}^6 X_i X f_i$.

Difficulty: Difficult

Keywords: interpretation, histogram

24) A professor of economics at a small Texas university wanted to determine what year in school students were taking his tough economics course. Shown below is a pie chart of the results. What percentage of the class took the course prior to reaching their senior year?



- A) 14%
- B) 44%
- C) 54%
- D) 86%

Answer: D

Difficulty: Easy

Keywords: interpretation, pie chart

25) When polygons or histograms are constructed, which axis must show the true zero or "origin"?

- A) The horizontal axis
- B) The vertical axis
- C) Both the horizontal and vertical axes
- D) Neither the horizontal nor the vertical axis

Answer: B

Difficulty: Easy

Keywords: polygon, histogram

26) When constructing charts, the following is plotted at the class midpoints:

- A) frequency histograms.
- B) percentage polygons.
- C) cumulative percentage polygon (ogives).
- D) All of the above.

Answer: B

Difficulty: Easy

Keywords: percentage polygon

TABLE 2-4

A survey was conducted to determine how people rated the quality of programming available on television. Respondents were asked to rate the overall quality from 0 (no quality at all) to 100 (extremely good quality). The stem-and-leaf display of the data is shown below.

| <u>Stem</u> | <u>Leaves</u> |
|-------------|---------------|
| 3 | 24 |
| 4 | 03478999 |
| 5 | 0112345 |
| 6 | 12566 |
| 7 | 01 |
| 8 | |
| 9 | 2 |

27) Referring to Table 2-4, what percentage of the respondents rated overall television quality with a rating of 80 or above?

- A) 0
- B) 4
- C) 96
- D) 100

Answer: B

Difficulty: Easy

Keywords: stem-and-leaf display, interpretation

28) Referring to Table 2-4, what percentage of the respondents rated overall television quality with a rating of 50 or below?

- A) 11
- B) 40
- C) 44
- D) 56

Answer: C

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

29) Referring to Table 2-4, what percentage of the respondents rated overall television quality with a rating from 50 through 75?

- A) 11
- B) 40
- C) 44
- D) 56

Answer: D

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

TABLE 2-5

The following are the duration in minutes of a sample of long-distance phone calls made within the continental United States reported by one long-distance carrier.

| <u>Time (in Minutes)</u> | <u>Relative Frequency</u> |
|--------------------------|---------------------------|
| 0 but less than 5 | 0.37 |
| 5 but less than 10 | 0.22 |
| 10 but less than 15 | 0.15 |
| 15 but less than 20 | 0.10 |
| 20 but less than 25 | 0.07 |
| 25 but less than 30 | 0.07 |
| 30 or more | 0.02 |

30) Referring to Table 2-5, what is the width of each class?

- A) 1 minute
- B) 5 minutes
- C) 2%
- D) 100%

Answer: B

Difficulty: Easy

Keywords: class interval, relative frequency distribution

31) Referring to Table 2-5, if 1,000 calls were randomly sampled, how many calls lasted under 10 minutes?

- A) 220
- B) 370
- C) 410
- D) 590

Answer: D

Difficulty: Moderate

Keywords: relative frequency distribution, interpretation

32) Referring to Table 2-5, if 100 calls were randomly sampled, how many calls lasted 15 minutes or longer?

- A) 10
- B) 14
- C) 26
- D) 74

Answer: C

Difficulty: Moderate

Keywords: relative frequency distribution, interpretation

33) Referring to Table 2-5, if 10 calls lasted 30 minutes or more, how many calls lasted less than 5 minutes?

- A) 10
- B) 185
- C) 295
- D) 500

Answer: B

Difficulty: Moderate

Keywords: relative frequency distribution, interpretation

34) Referring to Table 2-5, what is the cumulative relative frequency for the percentage of calls that lasted under 20 minutes?

- A) 0.10
- B) 0.59
- C) 0.76
- D) 0.84

Answer: D

Difficulty: Easy

Keywords: cumulative relative frequency

35) Referring to Table 2-5, what is the cumulative relative frequency for the percentage of calls that lasted 10 minutes or more?

- A) 0.16
- B) 0.24
- C) 0.41
- D) 0.90

Answer: C

Difficulty: Moderate

Keywords: cumulative relative frequency

36) Referring to Table 2-5, if 100 calls were randomly sampled, _____ of them would have lasted at least 15 minutes but less than 20 minutes

- A) 6
- B) 8
- C) 10
- D) 16

Answer: C

Difficulty: Easy

Keywords: relative frequency distribution, interpretation

37) Referring to Table 2-5, if 100 calls were sampled, _____ of them would have lasted less than 15 minutes.

- A) 26
- B) 74
- C) 10
- D) None of the above.

Answer: B

Difficulty: Moderate

Keywords: relative frequency distribution, interpretation

38) Referring to Table 2-5, if 100 calls were sampled, _____ of them would have lasted 20 minutes or more.

- A) 26
- B) 16
- C) 74
- D) None of the above.

Answer: B

Difficulty: Moderate

Keywords: relative frequency distribution, interpretation

39) Referring to Table 2-5, if 100 calls were sampled, _____ of them would have lasted less than 5 minutes or at least 30 minutes or more.

- A) 35
- B) 37
- C) 39
- D) None of the above.

Answer: C

Difficulty: Difficult

Keywords: relative frequency distribution, interpretation

40) Which of the following is appropriate for displaying data collected on the different brands of cars students at a major university drive?

- A) A Pareto chart
- B) A two-way classification table
- C) A histogram
- D) A scatter plot

Answer: A

Difficulty: Easy

Keywords: Pareto diagram

41) One of the developing countries is experiencing a baby boom, with the number of births rising for the fifth year in a row, according to a BBC News report. Which of the following is best for displaying this data?

- A) A Pareto chart
- B) A two-way classification table
- C) A histogram
- D) A time-series plot

Answer: D

Difficulty: Easy

Keywords: time-series plot

42) When studying the simultaneous responses to two categorical questions, you should set up a

- A) contingency table
- B) frequency distribution table
- C) cumulative percentage distribution table
- D) histogram

Answer: A

Difficulty: Easy

Keywords: contingency table

43) Data on 1,500 students' height were collected at a larger university in the East Coast. Which of the following is the best chart for presenting the information?

- A) a pie chart
- B) a Pareto chart
- C) a side-by-side bar chart
- D) a histogram

Answer: D

Difficulty: Easy

Keywords: choice of chart, histogram

44) Data on the number of part-time hours students at a public university worked in a week were collected. Which of the following is the best chart for presenting the information?

- A) a pie chart
- B) a Pareto chart
- C) a percentage table
- D) a percentage polygon

Answer: D

Difficulty: Easy

Keywords: choice of chart, percentage polygon

45) Data on the number of credit hours of 20,000 students at a public university enrolled in a spring semester were collected. Which of the following is the best for presenting the information?

- A) a pie chart
- B) a Pareto chart
- C) a stem-and-leaf display
- D) a contingency table

Answer: C

Difficulty: Easy

Keywords: choice of chart, stem-and-leaf

46) A survey of 150 executives were asked what they think is the most common mistake candidates make during job interviews. Six different mistakes were given. Which of the following is the best for presenting the information?

- A) a bar chart.
- B) a histogram
- C) a stem-and-leaf display
- D) a contingency table

Answer: A

Difficulty: Easy

Keywords: choice of chart, bar chart

47) You have collected information on the market share of 5 different search engines used by U.S. Internet users in a particular quarter. Which of the following is the best for presenting the information?

- A) a pie chart
- B) a histogram
- C) a stem-and-leaf display
- D) a contingency table

Answer: A

Difficulty: Easy

Keywords: choice of chart, pie chart

48) You have collected information on the consumption by the 15 largest coffee-consuming nations. Which of the following is the best for presenting the shares of the consumption?

- A) a pie chart
- B) a Pareto chart
- C) a side-by-side bar chart
- D) a contingency table

Answer: B

Explanation: B) NOTE: Even though a pie chart can also be used, the Pareto chart is preferable for separating the "vital few" from the "trivial many."

Difficulty: Moderate

Keywords: choice of chart, Pareto chart

49) You have collected data on the approximate retail price (in \$) and the energy cost per year (in \$) of 15 refrigerators. Which of the following is the best for presenting the data?

- A) a pie chart
- B) a scatter plot
- C) a side-by-side bar chart
- D) a contingency table

Answer: B

Difficulty: Easy

Keywords: choice of chart, scatter plot

50) You have collected data on the number of U.S. households actively using online banking and/or online bill payment over a 10-year period. Which of the following is the best for presenting the data?

- A) a pie chart
- B) a stem-and-leaf display
- C) a side-by-side bar chart
- D) a time-series plot

Answer: D

Difficulty: Easy

Keywords: choice of chart, time-series plot

51) You have collected data on the monthly seasonally adjusted civilian unemployment rate for the United States over a 10-year period. Which of the following is the best for presenting the data?

- A) a contingency table
- B) a stem-and-leaf display
- C) a time-series plot
- D) a side-by-side bar chart

Answer: C

Difficulty: Easy

Keywords: choice of chart, time-series plot

52) You have collected data on the number of complaints for 6 different brands of automobiles sold in the United States over a 10-year period. Which of the following is the best for presenting the data?

- A) a contingency table
- B) a stem-and-leaf display
- C) a time-series plot
- D) a side-by-side bar chart

Answer: D

Difficulty: Moderate

Keywords: choice of chart, side-by-side bar chart

53) You have collected data on the responses to two questions asked in a survey of 40 college students majoring in business—"What is your gender (Male = M; Female = F)?" and "What is your major (Accountancy = A; Computer Information Systems = C; Marketing = M)?" Which of the following is the best for presenting the data?

- A) a contingency table
- B) a stem-and-leaf display
- C) a time-series plot
- D) a Pareto chart

Answer: A

Difficulty: Moderate

Keywords: choice of chart, contingency table

TABLE 2-6

A sample of 200 students at a Big-Ten university was taken after the midterm to ask them whether they went bar hopping the weekend before the midterm or spent the weekend studying, and whether they did well or poorly on the midterm. The following table contains the result.

| | Did Well in Midterm | Did Poorly in Midterm |
|-------------------|---------------------|-----------------------|
| Studying for Exam | 80 | 20 |
| Went Bar Hopping | 30 | 70 |

54) Referring to Table 2-6, of those who went bar hopping the weekend before the midterm in the sample, _____ percent of them did well on the midterm.

- A) 15
- B) 27.27
- C) 30
- D) 55

Answer: C

Difficulty: Easy

Keywords: contingency table, interpretation

55) Referring to Table 2-6, of those who did well on the midterm in the sample, _____ percent of them went bar hopping the weekend before the midterm.

- A) 15
- B) 27.27
- C) 30
- D) 50

Answer: B

Difficulty: Easy

Keywords: contingency table, interpretation

56) Referring to Table 2-6, _____ percent of the students in the sample went bar hopping the weekend before the midterm and did well on the midterm.

- A) 15
- B) 27.27
- C) 30
- D) 50

Answer: A

Difficulty: Easy

Keywords: contingency table, interpretation

57) Referring to Table 2-6, _____ percent of the students in the sample spent the weekend studying and did well on the midterm.

- A) 40
- B) 50
- C) 72.72
- D) 80

Answer: A

Difficulty: Easy

Keywords: contingency table, interpretation

58) Referring to Table 2-6, if the sample is a good representation of the population, we can expect _____ percent of the students in the population to spend the weekend studying and do poorly on the midterm.

- A) 10
- B) 20
- C) 45
- D) 50

Answer: A

Difficulty: Easy

Keywords: contingency table, interpretation

59) Referring to Table 2-6, if the sample is a good representation of the population, we can expect _____ percent of those who spent the weekend studying to do poorly on the midterm.

- A) 10
- B) 20
- C) 45
- D) 50

Answer: B

Difficulty: Moderate

Keywords: contingency table, interpretation

60) Referring to Table 2-6, if the sample is a good representation of the population, we can expect _____ percent of those who did poorly on the midterm to have spent the weekend studying.

- A) 10
- B) 22
- C) 45
- D) 50

Answer: B

Difficulty: Moderate

Keywords: contingency table, interpretation

61) In a contingency table, the number of rows and columns

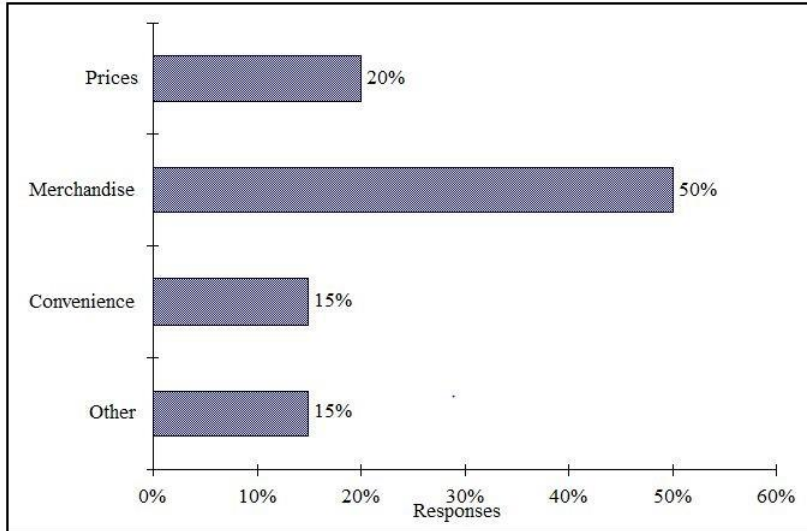
- A) must always be the same.
- B) must always be 2.
- C) must add to 100%.
- D) None of the above.

Answer: D

Difficulty: Moderate

Keywords: contingency table

62) Retailers are always interested in determining why a customer selected their store to make a purchase. A sporting goods retailer conducted a customer survey to determine why its customers shopped at the store. The results are shown in the bar chart below. What proportion of the customers responded that they shopped at the store because of the merchandise or the convenience?



- A) 35%
- B) 50%
- C) 65%
- D) 85%

Answer: C

Difficulty: Easy

Keywords: bar chart, interpretation

TABLE 2-7

The Stem-and-Leaf display below contains data on the number of months between the date a civil suit is filed and when the case is actually adjudicated for 50 cases heard in superior court.

| <u>Stem</u> | <u>Leaves</u> |
|-------------|-----------------------------|
| 1 | 2 3 4 4 4 7 8 9 9 |
| 2 | 2 2 2 2 3 4 5 5 6 7 8 8 8 9 |
| 3 | 0 0 1 1 1 3 5 7 7 8 |
| 4 | 0 2 3 4 5 5 7 9 |
| 5 | 1 1 2 4 6 6 |
| 6 | 1 5 8 |

63) Referring to Table 2-7, locate the first leaf, i.e., the lowest valued leaf with the lowest valued stem. This represents a wait of _____ months.

Answer: 12

Difficulty: Easy

Keywords: stem-and-leaf display, interpretation

64) Referring to Table 2-7, the civil suit with the longest wait between when the suit was filed and when it was adjudicated had a wait of _____ months.

Answer: 68

Difficulty: Easy

Keywords: stem-and-leaf display, interpretation

65) Referring to Table 2-7, the civil suit with the fourth shortest waiting time between when the suit was filed and when it was adjudicated had a wait of _____ months.

Answer: 14

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

66) Referring to Table 2-7, _____ percent of the cases were adjudicated within the first 2 years.

Answer: 30

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

67) Referring to Table 2-7, _____ percent of the cases were not adjudicated within the first 4 years.

Answer: 20

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

68) Referring to Table 2-7, if a frequency distribution with equal sized classes was made from this data, and the first class was "10 but less than 20," the frequency of that class would be _____.

Answer: 9

Difficulty: Easy

Keywords: stem-and-leaf display, interpretation

69) Referring to Table 2-7, if a frequency distribution with equal sized classes was made from this data, and the first class was "10 but less than 20," the relative frequency of the third class would be _____.

Answer: 0.20 or 20% or 10/50

Difficulty: Moderate

Keywords: stem-and-leaf display, relative frequency distribution

70) Referring to Table 2-7, if a frequency distribution with equal sized classes was made from this data, and the first class was "10 but less than 20," the cumulative percentage of the second class would be _____.

Answer: 46% or 0.46 or 23/50

Difficulty: Moderate

Keywords: stem-and-leaf display, cumulative percentage distribution

TABLE 2-8

The Stem-and-Leaf display represents the number of times in a year that a random sample of 100 "lifetime" members of a health club actually visited the facility.

| <u>Stem</u> | <u>Leaves</u> |
|-------------|--------------------------------|
| 0 | 012222233333344566666667789999 |
| 1 | 11112222344444455669999 |
| 2 | 00011223455556889 |
| 3 | 0000446799 |
| 4 | 011345567 |
| 5 | 0077 |
| 6 | 8 |
| 7 | 67 |
| 8 | 3 |
| 9 | 0247 |

71) Referring to Table 2-8, the person who has the largest leaf associated with the smallest stem visited the facility _____ times.

Answer: 9

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

72) Referring to Table 2-8, the person who visited the health club less than anyone else in the sample visited the facility _____ times.

Answer: 0 or no

Difficulty: Easy

Keywords: stem-and-leaf display, interpretation

73) Referring to Table 2-8, the person who visited the health club more than anyone else in the sample visited the facility _____ times.

Answer: 97

Difficulty: Easy

Keywords: stem-and-leaf display, interpretation

74) Referring to Table 2-8, _____ of the 100 members visited the health club at least 52 times in a year.

Answer: 10

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

75) Referring to Table 2-8, _____ of the 100 members visited the health club no more than 12 times in a year.

Answer: 38

Difficulty: Moderate

Keywords: stem-and-leaf display, interpretation

76) Referring to Table 2-8, if a frequency distribution with equal sized classes was made from this data, and the first class was "0 but less than 10," the frequency of the fifth class would be _____.

Answer: 9

Difficulty: Moderate

Keywords: stem-and-leaf display, frequency distribution

77) Referring to Table 2-8, if a frequency distribution with equal sized classes was made from this data, and the first class was "0 but less than 10," the relative frequency of the last class would be _____.

Answer: 4% or 0.04 or 4/100

Difficulty: Moderate

Keywords: stem-and-leaf display, relative frequency distribution

78) Referring to Table 2-8, if a frequency distribution with equal sized classes was made from this data, and the first class was "0 but less than 10," the cumulative percentage of the next-to-last class would be _____.

Answer: 96% or 0.96 or 96/100

Difficulty: Moderate

Keywords: stem-and-leaf display, cumulative percentage distribution

79) Referring to Table 2-8, if a frequency distribution with equal sized classes was made from this data, and the first class was "0 but less than 10," the class midpoint of the third class would be _____.

Answer: 25 or $(20 + 30)/2$

Difficulty: Moderate

Keywords: stem-and-leaf display, class midpoint

TABLE 2-9

The frequency distribution below represents the rents of 250 randomly selected federally subsidized apartments in a small town.

| <u>Rent in \$</u> | <u>Frequency</u> |
|---------------------------|------------------|
| 1,100 but less than 1,200 | 113 |
| 1,200 but less than 1,300 | 85 |
| 1,300 but less than 1,400 | 32 |
| 1,400 but less than 1,500 | 16 |
| 1,500 but less than 1,600 | 4 |

80) Referring to Table 2-9, _____ apartments rented for at least \$1,200 but less than \$1,400.

Answer: 117

Difficulty: Easy

Keywords: frequency distribution

81) Referring to Table 2-9, _____ of the apartments rented for \$1,400 or more.

Answer: 8% or 20/250

Difficulty: Easy

Keywords: frequency distribution, cumulative percentage distribution

82) Referring to Table 2-9, _____ of the apartments rented for at least \$1,300.

Answer: 20.8% or 52/250

Difficulty: Moderate

Keywords: frequency distribution, cumulative percentage distribution

83) Referring to Table 2-9, the class midpoint of the second class is _____.

Answer: 1,250

Difficulty: Easy

Keywords: frequency distribution, class midpoint

84) Referring to Table 2-9, the relative frequency of the second class is _____.

Answer: 85/250 or 17/50 or 34% or 0.34

Difficulty: Easy

Keywords: frequency distribution, relative frequency distribution

85) Referring to Table 2-9, the percentage of apartments renting for less than \$1,400 is _____.

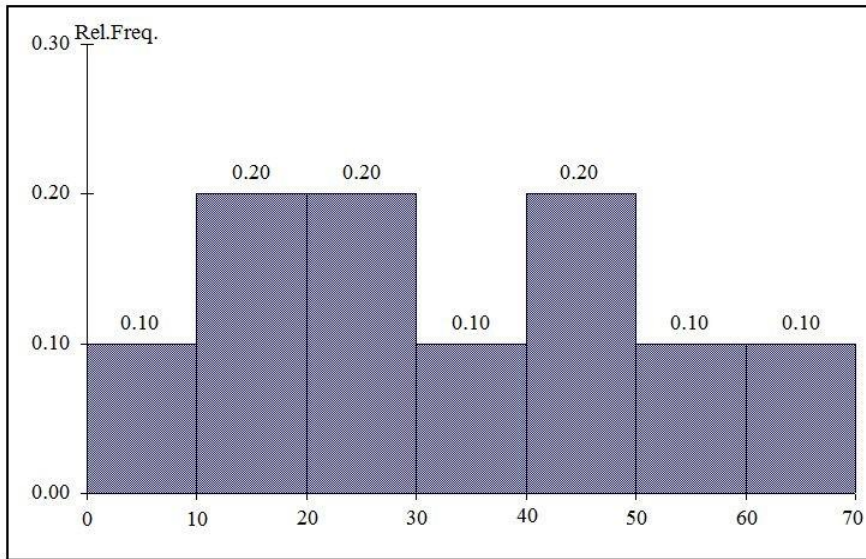
Answer: 230/250 or 23/25 or 92% or 0.92

Difficulty: Moderate

Keywords: frequency distribution, cumulative percentage distribution

TABLE 2-10

The histogram below represents scores achieved by 200 job applicants on a personality profile.



86) Referring to the histogram from Table 2-10, _____ percent of the job applicants scored between 10 and 20.

Answer: 20

Difficulty: Easy

Keywords: histogram, percentage distribution

87) Referring to the histogram from Table 2-10, _____ percent of the job applicants scored below 50.

Answer: 80

Difficulty: Moderate

Keywords: histogram, percentage distribution

88) Referring to the histogram from Table 2-10, the number of job applicants who scored between 30 and below 60 is _____.

Answer: 80

Difficulty: Moderate

Keywords: histogram

89) Referring to the histogram from Table 2-10, the number of job applicants who scored 50 or above is _____.

Answer: 40

Difficulty: Moderate

Keywords: histogram

90) Referring to the histogram from Table 2-10, 90% of the job applicants scored above or equal to _____.

Answer: 10

Difficulty: Moderate

Keywords: histogram, cumulative percentage distribution

91) Referring to the histogram from Table 2-10, half of the job applicants scored below _____.

Answer: 30

Difficulty: Moderate

Keywords: histogram, cumulative percentage distribution

92) Referring to the histogram from Table 2-10, _____ percent of the applicants scored below 20 or at least 50.

Answer: 50

Difficulty: Moderate

Keywords: histogram, cumulative percentage distribution

93) Referring to the histogram from Table 2-10, _____ percent of the applicants scored between 20 and below 50.

Answer: 50

Difficulty: Moderate

Keywords: histogram, cumulative percentage distribution

TABLE 2-11

The ordered array below resulted from selecting a sample of 25 batches of 500 computer chips and determining how many in each batch were defective.

Defects

| | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 4 | 4 | 5 | 5 | 6 | 7 | 9 | 9 | 12 | 12 | 15 |
| 17 | 20 | 21 | 23 | 23 | 25 | 26 | 27 | 27 | 28 | 29 | 29 | |

94) Referring to Table 2-11, if a frequency distribution for the defects data is constructed, using "0 but less than 5" as the first class, the frequency of the "20 but less than 25" class would be _____.

Answer: 4

Difficulty: Easy

Keywords: frequency distribution

95) Referring to Table 2-11, if a frequency distribution for the defects data is constructed, using "0 but less than 5" as the first class, the relative frequency of the "15 but less than 20" class would be _____.

Answer: 0.08 or 8% or 2/25

Difficulty: Moderate

Keywords: relative frequency distribution

96) Referring to Table 2-11, construct a frequency distribution for the defects data, using "0 but less than 5" as the first class.

Answer:

| Defects | Frequency |
|---------------------|-----------|
| 0 but less than 5 | 4 |
| 5 but less than 10 | 6 |
| 10 but less than 15 | 2 |
| 15 but less than 20 | 2 |
| 20 but less than 25 | 4 |
| 25 but less than 30 | 7 |

Difficulty: Easy

Keywords: frequency distribution

97) Referring to Table 2-11, construct a relative frequency or percentage distribution for the defects data, using "0 but less than 5" as the first class.

Answer:

| Defects | Percentage |
|---------------------|------------|
| 0 but less than 5 | 16 |
| 5 but less than 10 | 24 |
| 10 but less than 15 | 8 |
| 15 but less than 20 | 8 |
| 20 but less than 25 | 16 |
| 25 but less than 30 | 28 |

Difficulty: Moderate

Keywords: relative frequency distribution, percentage distribution

98) Referring to Table 2-11, construct a cumulative percentage distribution for the defects data if the corresponding frequency distribution uses "0 but less than 5" as the first class.

Answer:

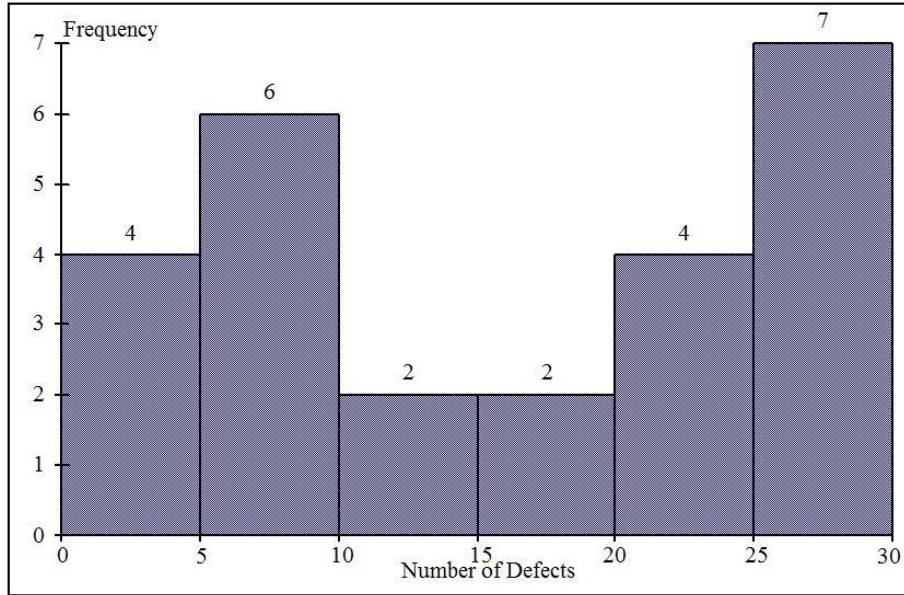
| Defects | CumPct |
|---------|--------|
| 0 | 0 |
| 5 | 16 |
| 10 | 40 |
| 15 | 48 |
| 20 | 56 |
| 25 | 72 |
| 30 | 100 |

Difficulty: Moderate

Keywords: cumulative percentage distribution

99) Referring to Table 2-11, construct a histogram for the defects data, using "0 but less than 5" as the first class.

Answer:



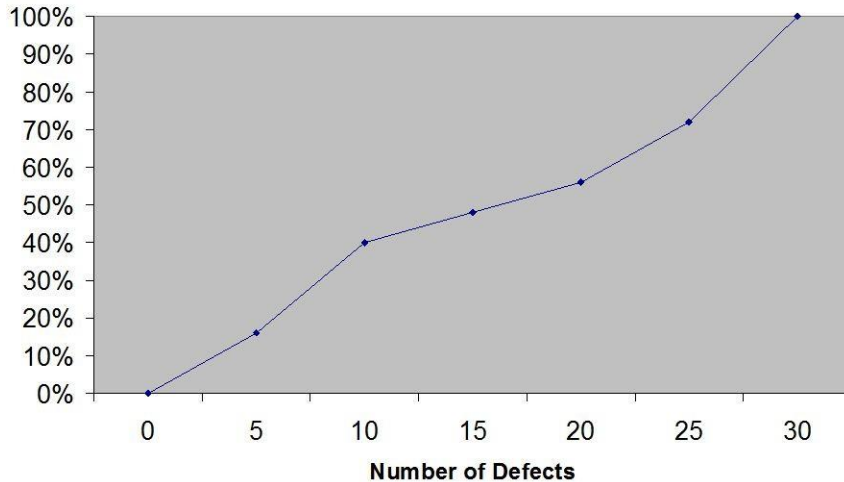
Difficulty: Easy

Keywords: histogram, frequency distribution

100) Referring to Table 2-11, construct a cumulative percentage polygon for the defects data if the corresponding frequency distribution uses "0 but less than 5" as the first class.

Answer:

Cumulative Percentage Polygon



Difficulty: Moderate

Keywords: cumulative percentage polygon

101) The point halfway between the boundaries of each class interval in a grouped frequency distribution is called the _____.

Answer: class midpoint

Difficulty: Easy

Keywords: cumulative percentage polygon, frequency distribution

102) A _____ is a vertical bar chart in which the rectangular bars are constructed at the boundaries of each class interval.

Answer: histogram

Difficulty: Easy

Keywords: histogram

103) It is essential that each class grouping or interval in a frequency distribution be _____ and _____.

Answer: non-overlapping and of equal width

Difficulty: Moderate

Keywords: frequency distribution, class interval

104) In order to compare one large set of numerical data to another, a _____ distribution must be developed from the frequency distribution.

Answer: relative frequency or percentage

Difficulty: Easy

Keywords: relative frequency distribution, percentage distribution

105) When comparing two or more large sets of numerical data, the distributions being developed should use the same _____.

Answer: class boundaries

Difficulty: Easy

Keywords: class boundaries

106) The width of each class grouping or interval in a frequency distribution should be _____.

Answer: the same or equal

Difficulty: Easy

Keywords: class interval, frequency distribution

107) In constructing a polygon, each class grouping is represented by its _____ and then these are consecutively connected to one another.

Answer: midpoint

Difficulty: Easy

Keywords: polygon, class interval, midpoint

108) A _____ is a summary table in which numerical data are tallied into class intervals or categories.

Answer: frequency distribution

Difficulty: Easy

Keywords: frequency distribution, class interval

109) True or False: In general, grouped frequency distributions should have between 5 and 15 class intervals.

Answer: TRUE

Difficulty: Easy

Keywords: frequency distribution, number of classes

110) True or False: The sum of relative frequencies in a distribution always equals 1.

Answer: TRUE

Difficulty: Easy

Keywords: relative frequency

111) True or False: The sum of cumulative frequencies in a distribution always equals 1.

Answer: FALSE

Difficulty: Moderate

Keywords: cumulative distribution

112) True or False: In graphing two categorical data, the side-by-side bar chart is best suited when comparing joint responses.

Answer: TRUE

Difficulty: Moderate

Keywords: side-by-side bar chart

113) True or False: When constructing a frequency distribution, classes should be selected so that they are of equal width.

Answer: TRUE

Difficulty: Easy

Keywords: frequency distribution

114) True or False: A research analyst was directed to arrange raw data collected on the yield of wheat, ranging from 40 to 93 bushels per acre, in a frequency distribution. He should choose 30 as the class interval width.

Answer: FALSE

Difficulty: Easy

Keywords: frequency distribution, class interval

115) True or False: If the values of the seventh and eighth class in a cumulative percentage distribution are the same, we know that there are no observations in the eighth class.

Answer: TRUE

Difficulty: Moderate

Keywords: cumulative percentage distribution

116) True or False: One of the advantages of a pie chart is that it clearly shows that the total of all the categories of the pie adds to 100%.

Answer: TRUE

Difficulty: Easy

Keywords: pie chart

117) True or False: The larger the number of observations in a numerical data set, the larger the number of class intervals needed for a grouped frequency distribution.

Answer: TRUE

Difficulty: Easy

Keywords: class interval, frequency distribution

118) True or False: Determining the class boundaries of a frequency distribution is highly subjective.

Answer: TRUE

Difficulty: Easy

Keywords: class boundaries, frequency distribution

119) True or False: The original data values cannot be determined once they are grouped into a frequency distribution table.

Answer: TRUE

Difficulty: Easy

Keywords: frequency distribution

120) True or False: The percentage distribution cannot be constructed from the frequency distribution directly.

Answer: FALSE

Difficulty: Easy

Keywords: percentage distribution, frequency distribution

121) True or False: The stem-and-leaf display is often superior to the frequency distribution in that it maintains the original values for further analysis.

Answer: TRUE

Difficulty: Easy

Keywords: stem-and-leaf display, frequency distribution

122) True or False: The relative frequency is the frequency in each class divided by the total number of observations.

Answer: TRUE

Difficulty: Easy

Keywords: relative frequency distribution

123) True or False: Ogives are plotted at the midpoints of the class groupings.

Answer: FALSE

Difficulty: Easy

Keywords: ogives, midpoint

124) True or False: Percentage polygons are plotted at the boundaries of the class groupings.

Answer: FALSE

Difficulty: Easy

Keywords: percentage polygon

125) True or False: The main principle behind the Pareto chart is the ability to separate the "vital few" from the "trivial many."

Answer: TRUE

Difficulty: Easy

Keywords: Pareto chart

126) True or False: A histogram can have gaps between the bars, whereas bar charts cannot have gaps.

Answer: FALSE

Difficulty: Easy

Keywords: histogram, bar chart

127) True or False: Histograms are used for numerical data while bar charts are suitable for categorical data.

Answer: TRUE

Difficulty: Easy

Keywords: histogram, bar chart

128) True or False: A Walmart store in a small town monitors customer complaints and organizes these complaints into six distinct categories. Over the past year, suppose the company has received 534 complaints. One possible graphical method for representing these data would be a Pareto chart.

Answer: TRUE

Difficulty: Moderate

Keywords: Pareto chart

129) True or False: Apple Computer, Inc. collected information on the age of their customers. Suppose the youngest customer was 12 and the oldest was 72. To study the distribution of the age among its customers, it can use a Pareto chart.

Answer: FALSE

Difficulty: Moderate

Keywords: Pareto chart

130) True or False: Apple Computer, Inc. collected information on the age of their customers. Suppose the youngest customer was 12 and the oldest was 72. To study the distribution of the age among its customers, it is best to use a pie chart.

Answer: FALSE

Difficulty: Moderate

Keywords: pie chart

131) True or False: Apple Computer, Inc. collected information on the age of their customers. Suppose the youngest customer was 12 and the oldest was 72. To study the distribution of the age among its customers, it can use a percentage polygon.

Answer: TRUE

Difficulty: Moderate

Keywords: percentage polygon

132) True or False: Apple Computer, Inc. collected information on the age of their customers. Suppose the youngest customer was 12 and the oldest was 72. To study the percentage of their customers who are below a certain age, it can use an ogive.

Answer: TRUE

Difficulty: Moderate

Keywords: ogive

133) True or False: If you wish to construct a graph of a relative frequency distribution, you would most likely construct an ogive first.

Answer: FALSE

Difficulty: Moderate

Keywords: ogive

134) True or False: An ogive is a cumulative percentage polygon.

Answer: TRUE

Difficulty: Easy

Keywords: ogive, cumulative percentage polygon

135) True or False: A side-by-side bar chart is two histograms plotted side-by-side.

Answer: FALSE

Difficulty: Moderate

Keywords: side-by-side bar chart

136) True or False: A good choice for the number of class groups to use in constructing frequency distribution is to have at least 5 but no more than 15 class groups.

Answer: TRUE

Difficulty: Easy

Keywords: number of classes

137) True or False: In general, a frequency distribution should have at least 8 class groups but no more than 20.

Answer: FALSE

Difficulty: Easy

Keywords: number of classes

138) True or False: To determine the width of class interval, divide the number of class groups by the range of the data.

Answer: FALSE

Difficulty: Easy

Keywords: class interval

139) True or False: The percentage polygon is formed by having the lower boundary of each class represent the data in that class and then connecting the sequence of lower boundaries at their respective class percentages.

Answer: FALSE

Difficulty: Easy

Keywords: percentage polygon

140) True or False: A polygon can be constructed from a bar chart.

Answer: FALSE

Difficulty: Moderate

Keywords: polygon

141) To evaluate two categorical variables at the same time, a _____ could be developed.

Answer: contingency or cross-classification table or side-by-side bar chart

Difficulty: Easy

Keywords: contingency table, cross-classification table

142) Relationships in a contingency table can be examined more fully if the frequencies are converted into _____.

Answer: percentages or proportions

Difficulty: Easy

Keywords: contingency table

TABLE 2-12

The table below contains the opinions of a sample of 200 people broken down by gender about the latest congressional plan to eliminate anti-trust exemptions for professional baseball.

| | <u>For</u> | <u>Neutral</u> | <u>Against</u> | <u>Totals</u> |
|---------------|------------|----------------|----------------|---------------|
| Female | 38 | 54 | 12 | 104 |
| Male | <u>12</u> | <u>36</u> | <u>48</u> | <u>96</u> |
| Totals | 50 | 90 | 60 | 200 |

143) Referring to Table 2-12, construct a table of row percentages.

Answer:

| | <u>For</u> | <u>Neutral</u> | <u>Against</u> | <u>Totals</u> |
|--------|--------------|----------------|----------------|---------------|
| Female | 36.54 | 51.92 | 11.54 | 100.00 |
| Male | <u>12.50</u> | <u>37.50</u> | <u>50.00</u> | <u>100.00</u> |
| Totals | 25.00 | 45.00 | 30.00 | 100.00 |

Difficulty: Easy

Keywords: row percentages

144) Referring to Table 2-12, construct a table of column percentages.

Answer:

| | <u>For</u> | <u>Neutral</u> | <u>Against</u> | <u>Totals</u> |
|--------|--------------|----------------|----------------|---------------|
| Female | 76.00 | 60.00 | 20.00 | 52.00 |
| Male | <u>24.00</u> | <u>40.00</u> | <u>80.00</u> | <u>48.00</u> |
| Totals | 100.00 | 100.00 | 100.00 | 100.00 |

Difficulty: Easy

Keywords: column percentages

145) Referring to Table 2-12, construct a table of total percentages.

Answer:

| | <u>For</u> | <u>Neutral</u> | <u>Against</u> | <u>Totals</u> |
|--------|-------------|----------------|----------------|---------------|
| Female | 19.00 | 27.00 | 6.00 | 52.00 |
| Male | <u>6.00</u> | <u>18.00</u> | <u>24.00</u> | <u>48.00</u> |
| Totals | 25.00 | 45.00 | 30.00 | 100.00 |

Difficulty: Easy

Keywords: total percentages

146) Referring to Table 2-12, of those for the plan in the sample, _____ percent were females.

Answer: 76

Difficulty: Moderate

Keywords: contingency table, column percentages

147) Referring to Table 2-12, of those neutral in the sample, _____ percent were males.

Answer: 40

Difficulty: Moderate

Keywords: contingency table, column percentages

148) Referring to Table 2-12, of the males in the sample, _____ percent were for the plan.

Answer: 12.50

Difficulty: Moderate

Keywords: contingency table

149) Referring to Table 2-12, of the females in the sample, _____ percent were against the plan.

Answer: 11.54

Difficulty: Moderate

Keywords: contingency table

150) Referring to Table 2-12, of the females in the sample, _____ percent were either neutral or against the plan.

Answer: 63.46 or $(51.92 + 11.54)$

Difficulty: Moderate

Keywords: contingency table

151) Referring to Table 2-12, _____ percent of the 200 were females who were against the plan.

Answer: 6

Difficulty: Moderate

Keywords: contingency table

152) Referring to Table 2-12, _____ percent of the 200 were males who were neutral.

Answer: 18

Difficulty: Moderate

Keywords: contingency table

153) Referring to Table 2-12, _____ percent of the 200 were females who were either neutral or against the plan.

Answer: 33

Difficulty: Difficult

Keywords: contingency table

154) Referring to Table 2-12, _____ percent of the 200 were males who were not against the plan.

Answer: 24

Difficulty: Difficult

Keywords: contingency table

155) Referring to Table 2-12, _____ percent of the 200 were not neutral.

Answer: 55

Difficulty: Difficult

Keywords: contingency table, row percentages

156) Referring to Table 2-12, _____ percent of the 200 were against the plan.

Answer: 30

Difficulty: Moderate

Keywords: contingency table, row percentages

157) Referring to Table 2-12, _____ percent of the 200 were males.

Answer: 48

Difficulty: Easy

Keywords: contingency table, column percentages

158) Referring to Table 2-12, if the sample is a good representation of the population, we can expect _____ percent of the population will be for the plan.

Answer: 25

Difficulty: Moderate

Keywords: contingency table, row percentages

159) Referring to Table 2-12, if the sample is a good representation of the population, we can expect _____ percent of the population will be males.

Answer: 48

Difficulty: Moderate

Keywords: contingency table, column percentages

160) Referring to Table 2-12, if the sample is a good representation of the population, we can expect _____ percent of those for the plan in the population will be males.

Answer: 24

Difficulty: Moderate

Keywords: contingency table

161) Referring to Table 2-12, if the sample is a good representation of the population, we can expect _____ percent of the males in the population will be against the plan.

Answer: 50

Difficulty: Moderate

Keywords: contingency table

162) Referring to Table 2-12, if the sample is a good representation of the population, we can expect _____ percent of the females in the population will not be against the plan.

Answer: 88.46 or (36.54 + 51.92)

Difficulty: Moderate

Keywords: contingency table

TABLE 2-13

Given below is the stem-and-leaf display representing the amount of detergent used in gallons (with leaves in 10ths of gallons) in a day by 25 drive-through car wash operations in Phoenix.

| | |
|----|-----------|
| 9 | 147 |
| 10 | 02238 |
| 11 | 135566777 |
| 12 | 223489 |
| 13 | 02 |

163) Referring to Table 2-13, if a frequency distribution for the amount of detergent used is constructed, using "9.0 but less than 10.0 gallons" as the first class, the frequency of the "11.0 but less than 12.0 gallons" class would be _____.

Answer: 9

Difficulty: Easy

Keywords: frequency distribution

164) Referring to Table 2-13, if a percentage histogram for the detergent data is constructed, using "9.0 but less than 10.0 gallons" as the first class, the percentage of drive-through car wash operations that use "12.0 but less than 13.0 gallons" of detergent would be _____.

Answer: 24%

Difficulty: Moderate

Keywords: relative frequency distribution, percentage distribution

165) Referring to Table 2-13, if a percentage histogram for the detergent data is constructed, using "9.0 but less than 10.0 gallons" as the first class, what percentage of drive-through car wash operations use less than 12 gallons of detergent in a day?

Answer: 68%

Difficulty: Easy

Keywords: percentage distribution, cumulative relative frequency

166) Referring to Table 2-13, if a relative frequency or percentage distribution for the detergent data is constructed, using "9.0 but less than 10.0 gallons" as the first class, what percentage of drive-through car wash operations use at least 10 gallons of detergent in a day?

Answer: 88%

Difficulty: Easy

Keywords: relative frequency distribution, percentage distribution

167) Referring to Table 2-13, if a relative frequency or percentage distribution for the detergent data is constructed, using "9.0 but less than 10.0 gallons" as the first class, what percentage of drive-through car wash operations use at least 10 gallons but less than 13 gallons of detergent in a day?

Answer: 80%

Difficulty: Easy

Keywords: relative frequency distribution, percentage distribution

168) Referring to Table 2-13, construct a frequency distribution for the detergent data, using "9.0 but less than 10.0 gallons" as the first class.

Answer:

| Purchases (gals) | Frequency |
|-------------------------|-----------|
| 9.0 but less than 10.0 | 3 |
| 10.0 but less than 11.0 | 5 |
| 11.0 but less than 12.0 | 9 |
| 12.0 but less than 13.0 | 6 |
| 13.0 but less than 14.0 | 2 |

Difficulty: Moderate

Keywords: frequency distribution

169) Referring to Table 2-13, construct a relative frequency or percentage distribution for the detergent data, using "9.0 but less than 10.0" as the first class.

Answer:

| Gasoline Purchases (gals) | Percentage |
|---------------------------|------------|
| 9.0 but less than 10.0 | 12% |
| 10.0 but less than 11.0 | 20 |
| 11.0 but less than 12.0 | 36 |
| 12.0 but less than 13.0 | 24 |
| 13.0 but less than 14.0 | 8 |

Difficulty: Moderate

Keywords: relative frequency distribution, percentage distribution

170) Referring to Table 2-13, construct a cumulative percentage distribution for the detergent data if the corresponding frequency distribution uses "9.0 but less than 10.0" as the first class.

Answer:

| Gasoline Purchases (gals) | Frequency Less Than | Percentage Less Than |
|---------------------------|---------------------|----------------------|
| 9.0 but less than 10.0 | 3 | 12 |
| 10.0 but less than 11.0 | 8 | 32 |
| 11.0 but less than 12.0 | 17 | 68 |
| 12.0 but less than 13.0 | 23 | 92 |
| 13.0 but less than 14.0 | 25 | 100 |

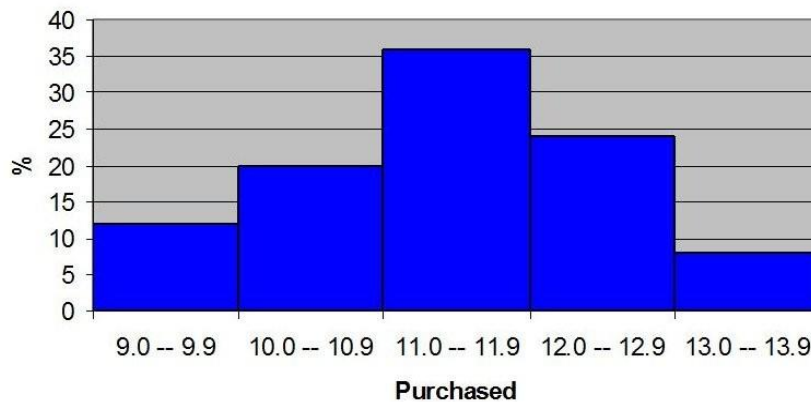
Difficulty: Moderate

Keywords: cumulative percentage distribution

171) Referring to Table 2-13, construct a percentage histogram for the detergent data, using "9.0 but less than 10.0" as the first class.

Answer:

% Histogram

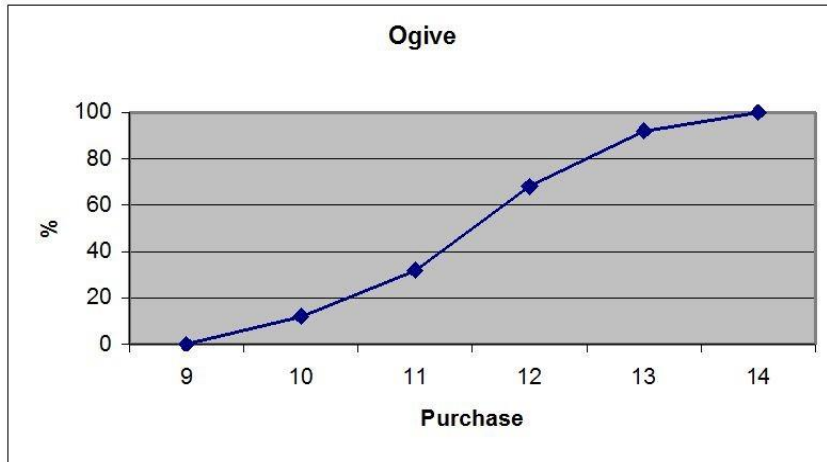


Difficulty: Moderate

Keywords: histogram, frequency distribution

172) Referring to Table 2-13, construct a cumulative percentage polygon for the detergent data if the corresponding frequency distribution uses "9.0 but less than 10.0" as the first class.

Answer:

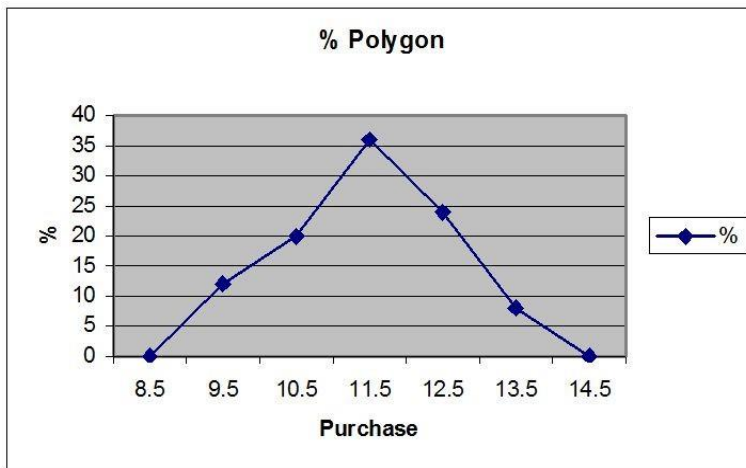


Difficulty: Moderate

Keywords: cumulative percentage polygon

173) Referring to Table 2-13, construct a percentage polygon for the detergent data if the corresponding frequency distribution uses "9.0 but less than 10.0" as the first class.

Answer:



Difficulty: Moderate

Keywords: percentage distribution, percentage polygon

TABLE 2-14

The table below contains the number of people who own a portable Blu-ray player in a sample of 600 broken down by gender.

| Own a Portable Blu-ray player | Male | Female |
|--------------------------------------|-------------|---------------|
| Yes | 96 | 40 |
| No | 224 | 240 |

174) Referring to Table 2-14, construct a table of row percentages.

Answer:

| Own | Male | Female | Total |
|--------------|-------------|---------------|--------------|
| Yes | 70.59% | 29.41% | 100.00% |
| No | 48.28% | 51.72% | 100.00% |
| Total | 53.33% | 46.67% | 100.00% |

Difficulty: Easy

Keywords: row percentages

175) Referring to Table 2-14, construct a table of column percentages.

Answer:

| Own | Male | Female | Total |
|--------------|-------------|---------------|--------------|
| Yes | 30.00% | 14.29% | 22.67% |
| No | 70.00% | 85.71% | 77.33% |
| Total | 100.00% | 100.00% | 100.00% |

Difficulty: Easy

Keywords: column percentages

176) Referring to Table 2-14, construct a table of total percentages.

Answer:

| Own | Male | Female | Total |
|--------------|-------------|---------------|--------------|
| Yes | 16.00% | 6.67% | 22.67% |
| No | 37.33% | 40.00% | 77.33% |
| Total | 53.33% | 46.67% | 100.00% |

Difficulty: Easy

Keywords: total percentages

177) Referring to Table 2-14, of those who owned a portable Blu-ray player in the sample, _____ percent were females.

Answer: 29.41

Difficulty: Moderate

Keywords: contingency table, row percentages

178) Referring to Table 2-14, of those who did not own a portable Blu-ray player in the sample, _____ percent were males.

Answer: 48.28

Difficulty: Moderate

Keywords: contingency table, row percentages

179) Referring to Table 2-14, of the males in the sample, _____ percent owned a portable Blu-ray player.

Answer: 30

Difficulty: Moderate

Keywords: contingency table, column percentages

180) Referring to Table 2-14, of the females in the sample, _____ percent did not own a portable Blu-ray player.

Answer: 85.71

Difficulty: Moderate

Keywords: contingency table, column percentages

181) Referring to Table 2-14, of the females in the sample, _____ percent owned a portable Blu-ray player.

Answer: 14.29

Difficulty: Moderate

Keywords: contingency table, column percentages

182) Referring to Table 2-14, _____ percent of the 600 were females who owned a portable Blu-ray player.

Answer: 6.67

Difficulty: Moderate

Keywords: contingency table, total percentage

183) Referring to Table 2-14, _____ percent of the 600 were males who owned a portable Blu-ray player.

Answer: 16

Difficulty: Moderate

Keywords: contingency table, total percentage

184) Referring to Table 2-14, _____ percent of the 600 were females who either owned or did not own a portable Blu-ray player.

Answer: 46.67

Difficulty: Moderate

Keywords: contingency table, total percentage

185) Referring to Table 2-14, _____ percent of the 600 were males who did not own a portable Blu-ray player.

Answer: 37.33

Difficulty: Moderate

Keywords: contingency table, total percentage

186) Referring to Table 2-14, _____ percent of the 600 owned a portable Blu-ray player.

Answer: 22.67

Difficulty: Moderate

Keywords: contingency table, column percentages

187) Referring to Table 2-14, _____ percent of the 600 did not own a portable Blu-ray player.

Answer: 77.33

Difficulty: Moderate

Keywords: contingency table, column percentages

188) Referring to Table 2-14, _____ percent of the 600 were females.

Answer: 46.67

Difficulty: Easy

Keywords: contingency table, row percentages

189) Referring to Table 2-14, if the sample is a good representation of the population, we can expect _____ percent of the population will own a portable Blu-ray player.

Answer: 22.67

Difficulty: Moderate

Keywords: contingency table, column percentages

190) Referring to Table 2-14, if the sample is a good representation of the population, we can expect _____ percent of the population will be males.

Answer: 53.33

Difficulty: Moderate

Keywords: contingency table, column percentages

191) Referring to Table 2-14, if the sample is a good representation of the population, we can expect _____ percent of those who own a portable Blu-ray player in the population will be males.

Answer: 70.59

Difficulty: Moderate

Keywords: contingency table, row percentages

192) Referring to Table 2-14, if the sample is a good representation of the population, we can expect _____ percent of the males in the population will own a portable Blu-ray player.

Answer: 30

Difficulty: Moderate

Keywords: contingency table, column percentages

193) Referring to Table 2-14, if the sample is a good representation of the population, we can expect _____ percent of the females in the population will not own a portable Blu-ray player.

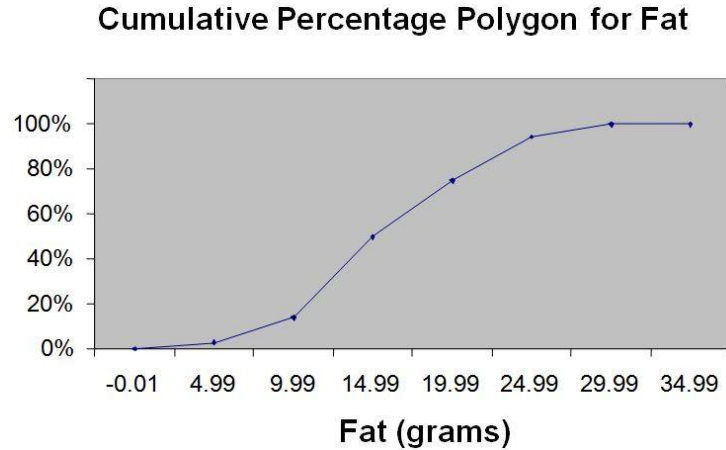
Answer: 85.71

Difficulty: Moderate

Keywords: contingency table, column percentages

TABLE 2-15

The figure below is the ogive for the amount of fat (in grams) for a sample of 36 pizza products where the upper boundaries of the intervals are: 5, 10, 15, 20, 25, and 30.



194) Referring to Table 2-15, roughly what percentage of pizza products contains less than 10 grams of fat?

- A) 3%
- B) 14%
- C) 50%
- D) 75%

Answer: B

Difficulty: Easy

Keywords: cumulative percentage polygon, ogive, interpretation

195) Referring to Table 2-15, what percentage of pizza products contains at least 20 grams of fat?

- A) 5%
- B) 25%
- C) 75%
- D) 96%

Answer: B

Difficulty: Easy

Keywords: cumulative percentage polygon, ogive, interpretation

196) Referring to Table 2-15, what percentage of pizza products contains between 10 and 25 grams of fat?

- A) 14%
- B) 44%
- C) 62%
- D) 81%

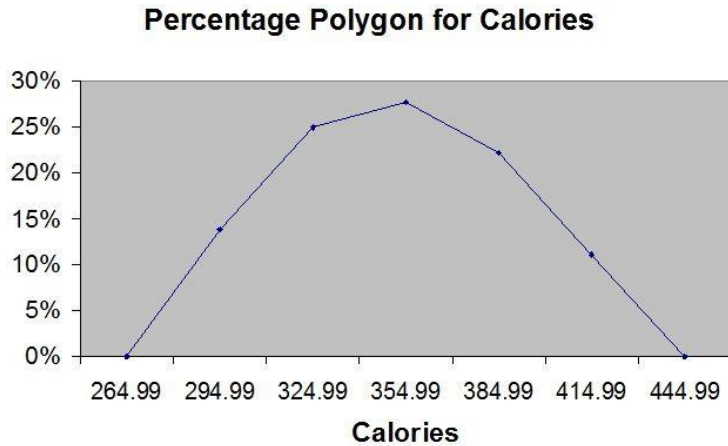
Answer: D

Difficulty: Easy

Keywords: cumulative percentage polygon, ogive, interpretation

TABLE 2-16

The figure below is the percentage polygon for the amount of calories for a sample of 36 pizza products where the upper limits of the intervals are: 310, 340, 370, 400 and 430.



197) Referring to Table 2-16, roughly what percentage of pizza products contains between 400 and 430 calories?

- A) 0%
- B) 11%
- C) 89%
- D) 100%

Answer: B

Difficulty: Easy

Keywords: percentage polygon, interpretation

198) Referring to Table 2-16, roughly what percentage of pizza products contains between 340 and 400 calories?

- A) 22%
- B) 25%
- C) 28%
- D) 50%

Answer: D

Difficulty: Moderate

Keywords: percentage polygon, interpretation

199) Referring to Table 2-16, roughly what percentage of pizza products contains at least 340 calories?

- A) 25%
- B) 28%
- C) 39%
- D) 61%

Answer: D

Difficulty: Moderate

Keywords: percentage polygon, interpretation

TABLE 2-17

The following table presents total retail sales in millions of dollars for the leading apparel companies over a two-year period.

| APPAREL COMPANY | Year 1 | Year 2 |
|-----------------|----------|--------|
| Gap | 1,159.00 | 962 |
| TJX | 781.7 | 899 |
| Limited | 596.5 | 620.4 |
| Kohl's | 544.9 | 678.9 |
| Nordstrom | 402.6 | 418.3 |
| Talbots | 139.9 | 130.1 |
| AnnTaylor | 114.2 | 124.8 |

200) Referring to Table 2-17, construct a table of column percentages.

Answer:

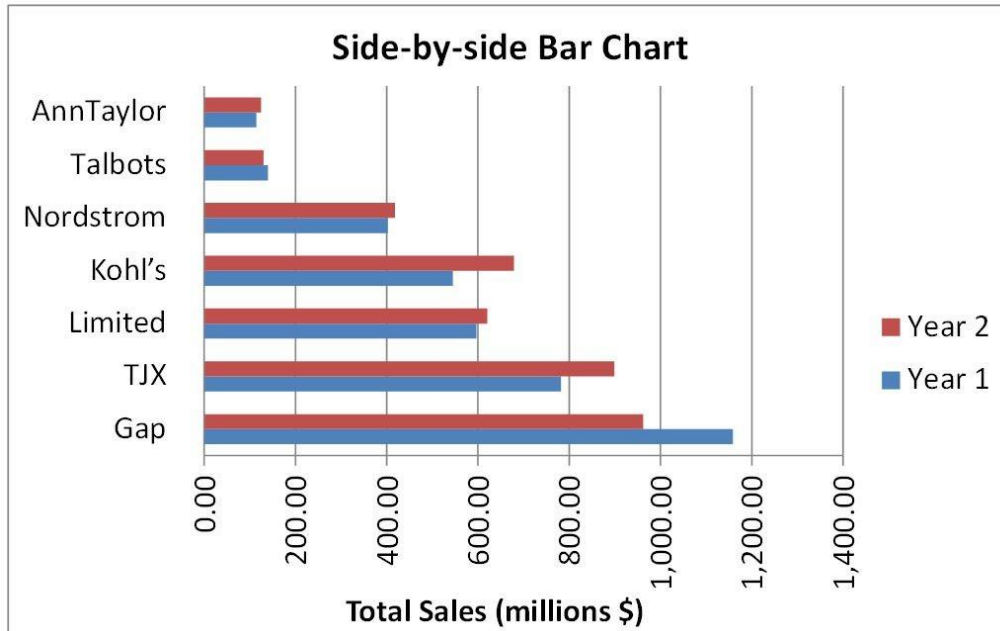
| Apparel Company | Year 1 | Year 2 |
|-----------------|---------|---------|
| Gap | 31.00% | 25.09% |
| TJX | 20.91% | 23.45% |
| Limited | 15.95% | 16.18% |
| Kohl's | 14.57% | 17.71% |
| Nordstrom | 10.77% | 10.91% |
| Talbots | 3.74% | 3.39% |
| AnnTaylor | 3.05% | 3.26% |
| Total | 100.00% | 100.00% |

Difficulty: Moderate

Keywords: column percentages

201) Referring to Table 2-17, construct a side-by-side bar chart.

Answer:



Difficulty: Moderate

Keywords: column percentages, side-by-side bar chart

202) True or False: Referring to Table 2-17, in general, retail sales for the apparel industry have seen a modest growth between Year 1 and Year 2.

Answer: TRUE

Difficulty: Easy

Keywords: column percentages, side-by-side bar chart, interpretation

203) Referring to Table 2-17, among the 8 stores, _____ saw a sales decline.

Answer: Gap and Talbots

Difficulty: Easy

Keywords: column percentages, side-by-side bar chart, interpretation

TABLE 2-18

The stem-and-leaf display below shows the result of a survey of 50 students on their satisfaction with their school, with the higher scores representing a higher level of satisfaction.

| | | Stem-and-Leaf Display | |
|-----------------------|-----------------|------------------------------|--------------------------------------|
| | | Stem unit 10 | |
| Statistics | | 4 | 1 3 6 6 7 |
| Sample Size | 50 | 5 | 0 0 3 8 9 |
| Mean | 71.06 | 6 | 0 1 1 4 4 5 7 7 9 9 |
| Median | 73.5 | 7 | 0 0 0 1 3 4 4 5 5 6 6 6 7 8 8 |
| Std. Deviation | 14.13695 | 8 | 0 1 1 3 4 4 5 7 7 8 9 |
| Minimum | 41 | 9 | 0 2 2 7 |
| Maximum | 97 | | |

204) Referring to Table 2-18, what was the highest level of satisfaction?

Answer: 97

Difficulty: Easy

Keywords: stem-and-leaf display

205) Referring to Table 2-18, what was the lowest level of satisfaction?

Answer: 41

Difficulty: Easy

Keywords: stem-and-leaf display

206) Referring to Table 2-18, how many students have a satisfaction level in the 50s?

Answer: 5

Difficulty: Easy

Keywords: stem-and-leaf display

207) Referring to Table 2-18, how many students have a satisfaction level below 60?

Answer: 10

Difficulty: Easy

Keywords: stem-and-leaf display

208) Referring to Table 2-18, how many students have a satisfaction level of at least 80?

Answer: 15

Difficulty: Easy

Keywords: stem-and-leaf display

209) True or False: Referring to Table 2-18, the level of satisfaction is concentrated around 75.

Answer: TRUE

Difficulty: Easy

Keywords: stem-and-leaf display

210) True or False: Referring to Table 2-18, if a student is randomly selected, his/her most likely level of satisfaction will be in the 70s among the 40s, 50s, 60s, 70s, 80s and 90s.

Answer: TRUE

Difficulty: Easy

Keywords: stem-and-leaf display

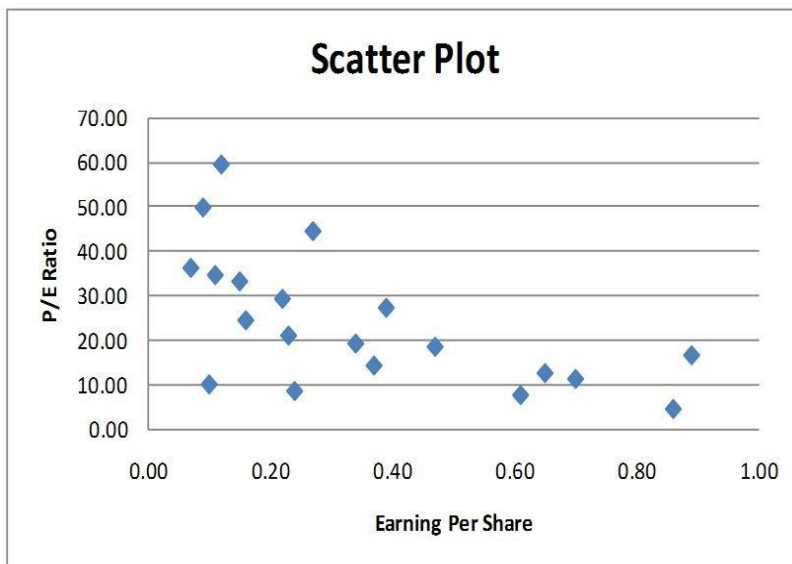
211) True or False: Referring to Table 2-18, if a student is randomly selected, his/her most likely level of satisfaction will be in the 60s among the 40s, 50s, 60s, 70s, 80s and 90s.

Answer: FALSE

Difficulty: Easy

Keywords: stem-and-leaf display

212) True or False: Given below is the scatter plot of the price/earnings ratio versus earnings per share of 20 U.S. companies. There appears to be a negative relationship between price/earnings ratio and earnings per share.

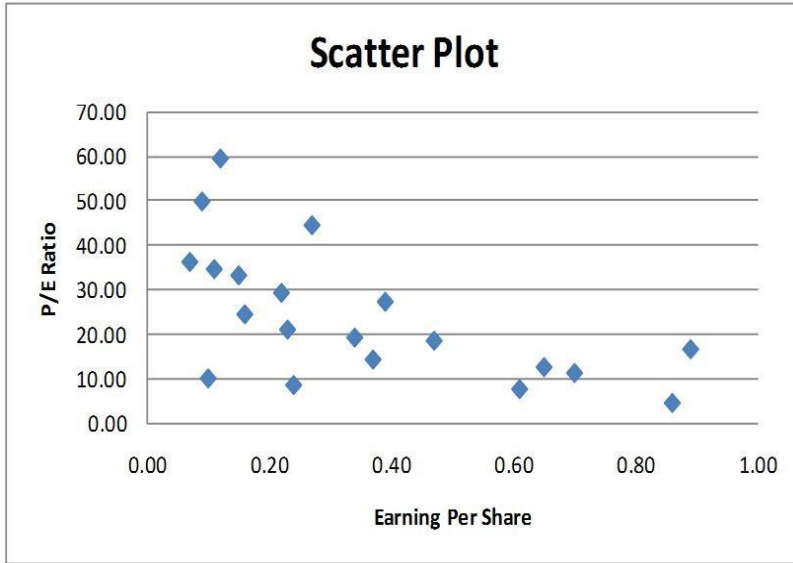


Answer: TRUE

Difficulty: Easy

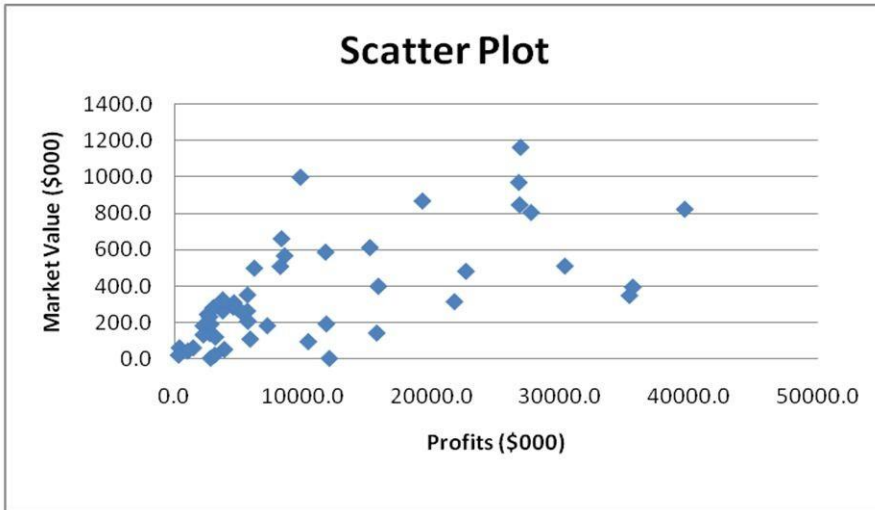
Keywords: scatter plot

213) True or False: Given below is the scatter plot of the price/earnings ratio versus earnings per share of 20 U.S. companies. There appears to be a positive relationship between price/earnings ratio and earnings per share.



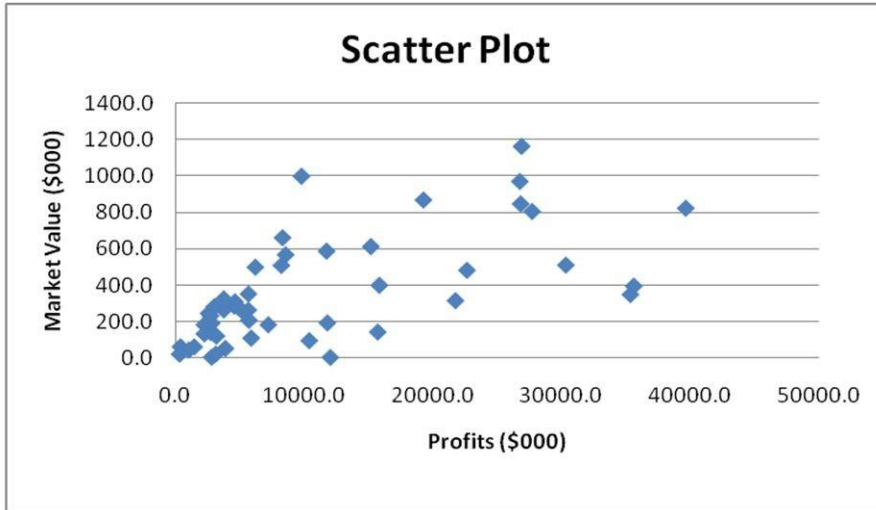
Answer: FALSE
 Difficulty: Moderate
 Keywords: scatter plot

214) True or False: Given below is the scatter plot of the market value (thousands\$) and profit (thousands\$) of 50 U.S. companies. Higher market values appear to be associated with higher profits.



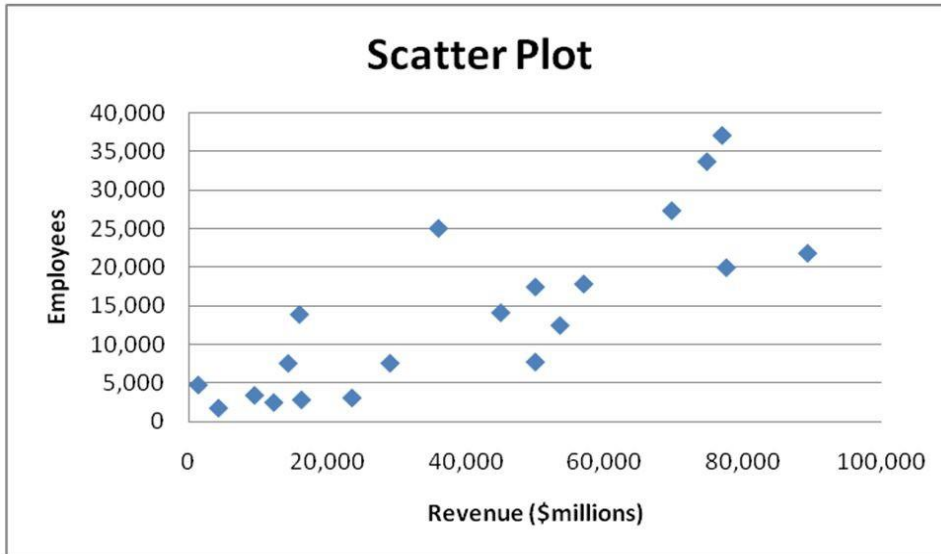
Answer: TRUE
 Difficulty: Easy
 Keywords: scatter plot

215) True or False: Given below is the scatter plot of the market value (thousands\$) and profit (thousands\$) of 50 U.S. companies. There appears to be a negative relationship between market value and profit.



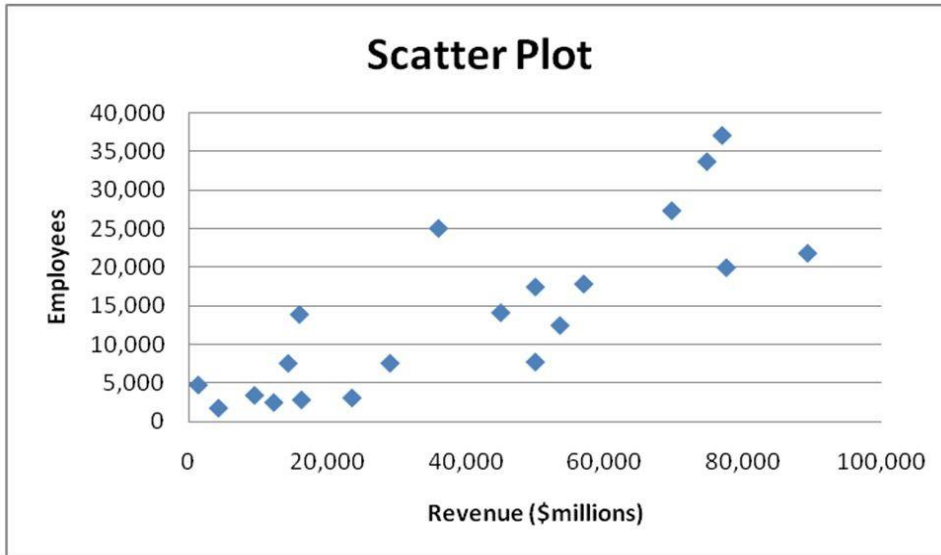
Answer: FALSE
 Difficulty: Easy
 Keywords: scatter plot

216) True or False: Given below is the scatter plot of the number of employees and the total revenue (millions\$) of 20 U.S. companies. There appears to be a positive relationship between total revenue and the number of employees.



Answer: TRUE
 Difficulty: Moderate
 Keywords: scatter plot

217) True or False: Given below is the scatter plot of the number of employees and the total revenue (millions\$) of 20 U.S. companies. Companies that have higher numbers of employees appear to also have higher total revenue.



Answer: TRUE

Difficulty: Moderate

Keywords: scatter plot

218) The addition of visual elements that either fail to convey any useful information or that obscure important points about the data in an attempt to enhance the visualization of data is called _____.

Answer: chart junk

Difficulty: Easy

Keywords: challenges in visualizing data

219) True or False: The Guidelines for Developing Visualizations recommend avoiding uncommon chart types such as doughnut, radar, cone and pyramid charts.

Answer: TRUE

Difficulty: Easy

Keywords: challenges in visualizing data

220) True or False: The Guidelines for Developing Visualizations recommend using the simplest possible visualization.

Answer: TRUE

Difficulty: Easy

Keywords: challenges in visualizing data

221) True or False: The Guidelines for Developing Visualizations recommend labeling all axes only when it is possible.

Answer: FALSE

Difficulty: Easy

Keywords: challenges in visualizing data

222) True or False: The Guidelines for Developing Visualizations recommend using varying scale to conserve precious space whenever possible.

Answer: FALSE

Difficulty: Easy

Keywords: challenges in visualizing data

223) True or False: The Guidelines for Developing Visualizations recommend always starting the scale for a vertical axis at zero.

Answer: TRUE

Difficulty: Easy

Keywords: challenges in visualizing data

224) True or False: The Guidelines for Developing Visualizations recommend always including a scale for each axis if the chart contains axes.

Answer: TRUE

Difficulty: Easy

Keywords: challenges in visualizing data

225) True or False: When you work with many variables, you must be mindful of the limits of the information technology as well as the limits of the ability of your readers to perceive and comprehend your results.

Answer: TRUE

Difficulty: Easy

Keywords: organizing and visualizing many variables

226) True or False: A multidimensional contingency table allows you to tally the responses of more than two continuous variables.

Answer: FALSE

Difficulty: Moderate

Keywords: multidimensional contingency table, organizing and visualizing many variables

227) True or False: A multidimensional contingency table allows you to tally the responses of more than two categorical variables.

Answer: TRUE

Difficulty: Moderate

Keywords: multidimensional contingency table, organizing and visualizing many variables

228) True or False: Double-clicking a cell in a PivotTable causes Excel to drill down and display the underlying data in a new worksheet.

Answer: TRUE

Difficulty: Moderate

Keywords: drill down, PivotTable, multidimensional contingency table, organizing and visualizing many variables

229) True or False: You can compute any of the numerical descriptive statistics for the variables of the new worksheet that a drill-down in a PivotTable creates.

Answer: TRUE

Difficulty: Moderate

Keywords: drill down, PivotTable, multidimensional contingency table, organizing and visualizing many variables

230) True or False: Some business analytics are performed by adding variables to see if unforeseen relationships are uncovered.

Answer: TRUE

Difficulty: Easy

Keywords: business analytics

231) True or False: Some business analytics involve starting with many variables and are then followed by filtering the data by exploring specific combinations of categorical values or numerical range.

Answer: TRUE

Difficulty: Easy

Keywords: business analytics, filter

232) True or False: Some business analytics involve starting with many variables and are then followed by filtering the data by exploring specific combinations of categorical values or numerical range. In Excel, this approach is mimicked by using a drill-down.

Answer: FALSE

Difficulty: Easy

Keywords: business analytics, filter, PivotTable, drill-down

233) True or False: Some business analytics involve starting with many variables and are then followed by filtering the data by exploring specific combinations of categorical values or numerical range. In Excel, this approach is mimicked by using a slicer.

Answer: TRUE

Difficulty: Easy

Keywords: business analytics, filter, PivotTable, slicer

234) True or False: In real-world business analytics, filtering are typically performed on large data based on complex conditional relationship.

Answer: TRUE

Difficulty: Easy

Keywords: business analytics, filter, PivotTable

235) True or False: There is no significant difference between filtering performed in a complex real-world business analytic and filtering performed using the slicers in a PivotTable in Excel.

Answer: FALSE

Difficulty: Moderate

Keywords: business analytics, filter, PivotTable, slicer