Chapter 02 - Descriptive Statistics: Tabular and Graphical Displays

1. The minimum number of variables represented in a bar chart is _____.
   a. 1
   b. 2
   c. 3
   d. 4

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

2. The minimum number of variables represented in a histogram is _____.
   a. 1
   b. 2
   c. 3
   d. 4

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

3. Which of the following graphical methods is most appropriate for categorical data?
   a. ogive
   b. pie chart
   c. histogram
   d. scatter diagram

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

4. In a stem-and-leaf display, _____.
   a. a single digit is used to define each stem, and a single digit is used to define each leaf
   b. a single digit is used to define each stem, and one or more digits are used to define each leaf
   c. one or more digits are used to define each stem, and a single digit is used to define each leaf
   d. one or more digits are used to define each stem, and one or more digits are used to define each leaf

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

5. A graphical method that can be used to show both the rank order and shape of a data set simultaneously is a _____.
   a. relative frequency distribution
   b. pie chart
   c. stem-and-leaf display
   d. pivot table

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

6. The proper way to construct a stem-and-leaf display for the data set {62, 67, 68, 73, 73, 79, 91, 94, 95, 97} is to _____.
   a. exclude a stem labeled ‘8’
   b. include a stem labeled ‘8’ and enter no leaves on the stem
   c. include a stem labeled ‘(8)’ and enter no leaves on the stem
   d. include a stem labeled ‘8’ and enter one leaf value of ‘0’ on the stem

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

7. Data that provide labels or names for groupings of like items are known as _____.
   a. categorical data
   b. quantitative data
   c. label data
   d. generic data

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1

NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

8. A researcher is gathering data from four geographical areas designated: South = 1; North = 2; East = 3; West = 4. The designated geographical regions represent _____.

a. categorical data
b. quantitative data
c. directional data
d. either quantitative or categorical data

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

9. A researcher asked 20 people for their zip code. The respondents zip codes are an example of _____.

a. categorical data
b. quantitative data
c. label data
d. category data

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

10. The age of employees at a company is an example of _____.

a. categorical data
b. quantitative data
c. label data
d. time series data

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

11. A frequency distribution is a _____.

a. tabular summary of a set of data showing the fraction of items in each of several nonoverlapping classes
b. graphical form of representing data
c. tabular summary of a set of data showing the number of items in each of several nonoverlapping classes
d. graphical device for presenting categorical data

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

12. The sum of frequencies for all classes will always equal _____.
a. 1
b. the number of elements in a data set
c. the number of classes
d. a value between 0 and 1

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

13. In constructing a frequency distribution, as the number of classes is decreased, the class width _____.
a. decreases
b. remains unchanged
c. increases
d. can increase or decrease depending on the data values

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

14. If several frequency distributions are constructed from the same data set, the distribution with the widest class width will have the _____.
a. fewest classes
b. most classes
c. same number of classes as the other distributions since all are constructed from the same data
d. None of the answers is correct.

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

15. Excel's _____ can be used to construct a frequency distribution for categorical data.
    a. DISTRIBUTION function
    b. SUM function
    c. FREQUENCY function
    d. COUNTIF function

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

16. There are 20 boys and 8 girls in a class. What type of graph can be used to display this information?
    a. bar graph
    b. stem-and-leaf plot
    c. histogram
    d. scatter diagram

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Data Visualization: Best Practices in Creating Effective Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.05 - 2.5
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

17. The relative frequency of a class is computed by _____.
    a. dividing the midpoint of the class by the sample size
    b. dividing the frequency of the class by the midpoint
    c. dividing the sample size by the frequency of the class
    d. dividing the frequency of the class by the sample size

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2

NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

18. The sum of the relative frequencies for all classes will always equal _____.
    a. the sample size
    b. the number of classes
    c. 1
    d. 100

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

19. The height and weight are recorded by the school nurse for every student in a school. What type of graph would best display the relationship between height and weight?
    a. bar graph
    b. stem-and-leaf plot
    c. histogram
    d. scatter diagram

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

20. The percent frequency of a class is computed by _____.
    a. multiplying the relative frequency by 10
    b. dividing the relative frequency by 100
    c. multiplying the relative frequency by 100
    d. adding 100 to the relative frequency

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

21. A dot plot can be used to display _____.

a. the relationship between two quantitative variables
b. the percent a particular category is of the whole
c. the distribution of one quantitative variable
d. Simpson's paradox

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

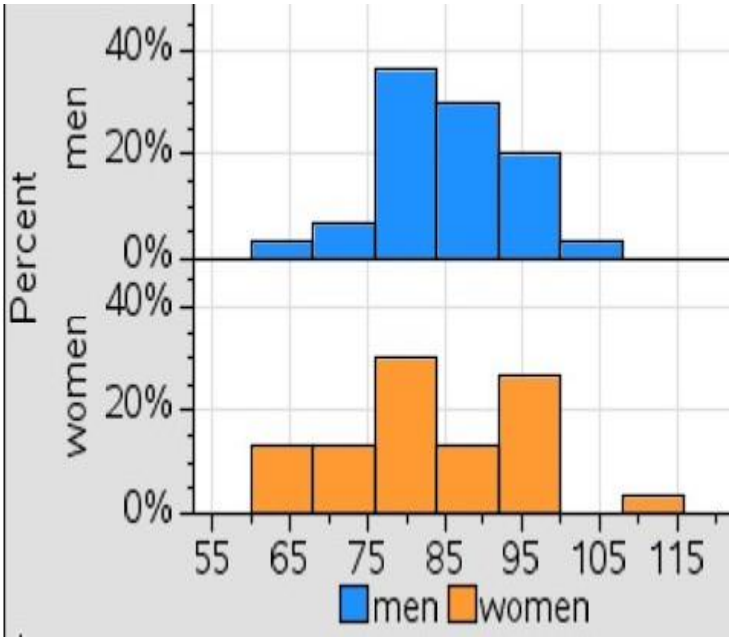
22. In a cumulative frequency distribution, the last class will always have a cumulative frequency equal to _____.
a. 1
b. 100%
c. the total number of elements in the data set
d. None of the answers is correct.

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

23. What is the difference between a bar graph and a histogram?
a. There is no difference between a bar graph and a histogram.
b. A histogram displays quantitative data, while a bar graph displays categorical data.
c. A histogram must have space between the bars, while a bar graph has no spaces between the bars.
d. None of the answers is correct.

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

24. College students were surveyed to determine how much they planned to spend in various categories during the upcoming academic year. One category is the amount spent on school supplies. The graphs below show the amount of money spent on school supplies by women and men.



Approximately what percent of women spend more than $105 on school supplies?

a. 5%
b. 10%
c. 15%
d. 20%

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

25. The difference between the lower class limits of adjacent classes provides the _____.

a. number of classes
b. class limits
c. class midpoint
d. class width

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

Exhibit 2-1
The numbers of hours worked (per week) by 400 statistics students are shown below.

Number of Hours	Frequency
$0 \leq x < 10$	20
$10 \leq x < 20$	80
$20 \leq x < 30$	200
$30 \leq x < 40$	100

26. Refer to Exhibit 2-1. The class width for this distribution _____.

a. is 9

b. is 10

c. is 40, which is the largest value minus the smallest value or 40 − 0 =40

d. varies from class to class

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

27. Refer to Exhibit 2-1. The midpoint of the last class is _____.

a. 50

b. 34

c. 35

d. 34.5

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

28. Refer to Exhibit 2-1. The number of students working less than 20 hours is _____.

a. 80

b. 100

c. 180

d. 300

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking

KEYWORDS: Bloom's: Analysis

29. Refer to Exhibit 2-1. The relative frequency of students working less than 10 hours is _____.
    a. 20
    b. 100
    c. .95
    d. .05

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

30. Refer to Exhibit 2-1. The cumulative relative frequency for the class of $20 \leq x < 30$ is _____.
    a. 300
    b. .25
    c. .75
    d. .5

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

31. Refer to Exhibit 2-1. The percentage of students working between 10 and 20 hours is _____.
    a. 20%
    b. 25%
    c. 75%
    d. 80%

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

32. Refer to Exhibit 2-1. The percentage of students working less than 20 hours is _____.
    a. 20%
    b. 25%

c. 75%
d. 80%

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

33. Refer to Exhibit 2-1. The cumulative percent frequency for the class of 30 to 40 is _____.
a. 100%
b. 75%
c. 50%
d. 25%

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

34. Refer to Exhibit 2-1. The cumulative frequency for the class of 20 to 30 is _____.
a. 200
b. 300
c. .75
d. .50

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

35. Refer to Exhibit 2-1. If a cumulative frequency distribution is developed for the above data, the last class will have a cumulative frequency of _____.
a. 100
b. 1
c. 30−39
d. 400

ANSWER: d
POINTS: 1

DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

36. Refer to Exhibit 2-1. The percentage of students who work at least 10 hours per week is _____.
    a. 50%
    b. 5%
    c. 95%
    d. 100%

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

Exhibit 2-2
Information on the type of industry is provided for a sample of 50 Fortune 500 companies.

Industry Type	Frequency
Banking	7
Consumer Products	15
Electronics	10
Retail	18

37. Refer to Exhibit 2-2. The number of industries that are classified as retail is _____.
    a. 32
    b. 18
    c. 0.36
    d. 36%

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

38. Refer to Exhibit 2-2. The relative frequency of industries that are classified as banking is _____.
    a. 7
    b. .07
    c. .70
    d. .14

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

39. Refer to Exhibit 2-2. The percent frequency of industries that are classified as electronics is _____.
    a. 10
    b. 20
    c. .10
    d. .20

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

Exhibit 2-3
The number of sick days taken (per month) by 200 factory workers is summarized below.

Number of Days	Frequency
0−5	120
6−10	65
11−15	14
16−20	1

40. Refer to Exhibit 2-3. The class width for this distribution _____.
    a. is 5
    b. is 6
    c. is 20, which is the largest value minus the smallest value or 20 − 0 = 20
    d. varies between 5 and 6

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

41. Refer to Exhibit 2-3. The midpoint of the first class is _____.
    a. 10
    b. 2

c. 2.5
d. 3

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

42. Refer to Exhibit 2-3. The number of workers who took less than 11 sick days per month is _____.
a. 15
b. 200
c. 185
d. 65

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

43. Refer to Exhibit 2-3. The number of workers who took at most 10 sick days per month is _____.
a. 15
b. 200
c. 185
d. 65

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

44. Refer to Exhibit 2-3. The number of workers who took more than 10 sick days per month is _____.
a. 15
b. 200
c. 185
d. 65

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate

REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

45. Refer to Exhibit 2-3. The number of workers who took at least 11 sick days per month is _____.
    a. 15
    b. 200
    c. 185
    d. 65
ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

46. Refer to Exhibit 2-3. The relative frequency of workers who took 10 or fewer sick days is _____.
    a. 185
    b. .925
    c. 93
    d. 15
ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

47. Refer to Exhibit 2-3. The cumulative relative frequency for the class of 11−15 is _____.
    a. 199
    b. .07
    c. 1
    d. .995
ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

48. Refer to Exhibit 2-3. The percentage of workers who took 0−5 sick days per month is _____.

a. 20%
b. 120%
c. 75%
d. 60%

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

49. Refer to Exhibit 2-3. The cumulative percent frequency for the class of 16−20 is _____.

a. 100%
b. 65%
c. 92.5%
d. 0.5%

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

50. Refer to Exhibit 2-3. The cumulative frequency for the class of 11−15 is _____.

a. 200
b. 14
c. 199
d. 1

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

Exhibit 2-4
A survey of 400 college seniors resulted in the following crosstabulation regarding their undergraduate major and whether or not they plan to go to graduate school.

Undergraduate Major

Graduate School	Business	Engineering	Other	Total
Yes	35	42	63	140
No	91	104	65	260
Total	126	146	128	400

51. Refer to Exhibit 2-4. What percentage of the students does not plan to go to graduate school?

a. 280%
b. 520%
c. 65%
d. 32%

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

52. Refer to Exhibit 2-4. What percentage of the students' undergraduate major is Engineering?

a. 292%
b. 520%
c. 65%
d. 36.5%

ANSWER: d
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

53. Refer to Exhibit 2-4. Of those students who are majoring in Business, what percentage plans to go to graduate school?

a. 27.78%
b. 8.75%
c. 70%
d. 72.22%

ANSWER: a
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3

NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

54. Refer to Exhibit 2-4. Among the students who plan to go to graduate school, what percentage indicated "Other" majors?

a. 15.75%
b. 45%
c. 54%
d. 35%

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

55. A graphical device for depicting categorical data that have been summarized in a frequency distribution, relative frequency distribution, or percent frequency distribution is a(n) _____.

a. histogram
b. stem-and-leaf display
c. ogive
d. bar chart

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Data Visualization: Best Practices in Creating Effective Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.05 - 2.5
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

56. A graphical device for presenting categorical data summaries based on subdivision of a circle into sectors that correspond to the relative frequency for each class is a _____.

a. histogram
b. stem-and-leaf display
c. pie chart
d. bar chart

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Data Visualization: Best Practices in Creating Effective Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.05 - 2.5
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

57. Categorical data can be graphically represented by using a(n) _____.

a. histogram
b. frequency polygon
c. ogive
d. bar chart

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Data Visualization: Best Practices in Creating Effective Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.05 - 2.5
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

58. Fifteen percent of the students in a School of Business Administration are majoring in Economics, 20% in Finance, 35% in Management, and 30% in Accounting. The graphical device(s) that can be used to present these data is(are) _____.

a. a line graph
b. only a bar chart
c. only a pie chart
d. both a bar chart and a pie chart

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Data Visualization: Best Practices in Creating Effective Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.05 - 2.5
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

59. Frequency distributions can be made for _____.

a. categorical data only
b. quantitative data only
c. neither categorical nor quantitative data
d. both categorical and quantitative data

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Data Visualization: Best Practices in Creating Effective Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.05 - 2.5
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

60. The total number of data items with a value less than or equal to the upper limit for the class is given by the _____.

a. frequency distribution
b. relative frequency distribution

c. cumulative frequency distribution
d. cumulative relative frequency distribution

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

61. Excel's _____ can be used to construct a frequency distribution for quantitative data.
a. COUNTIF function
b. SUM function
c. PivotTable report
d. AVERAGE function

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

62. A graphical presentation of a frequency distribution, relative frequency distribution, or percent frequency distribution of quantitative data constructed by placing the class intervals on the horizontal axis and the frequencies on the vertical axis is a _____.
a. histogram
b. bar chart
c. stem-and-leaf display
d. pie chart

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

63. A common graphical presentation of quantitative data is a _____.
a. histogram
b. bar chart
c. relative frequency
d. pie chart

ANSWER: a

POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

64. When using Excel to create a _____, one must edit the chart to remove the gaps between rectangles.
    a. scatter diagram
    b. bar chart
    c. histogram
    d. pie chart
ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

65. A _____ can be used to graphically present quantitative data.
    a. histogram
    b. pie chart
    c. stem-and-leaf display
    d. histogram and a stem-and-leaf display
ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

66. A(n) _____ is a graph of a cumulative distribution.
    a. histogram
    b. pie chart
    c. stem-and-leaf display
    d. ogive
ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking

KEYWORDS: Bloom's: Knowledge

67. Excel's Chart Tools can be used to construct a _____.
    a. bar chart
    b. pie chart
    c. histogram
    d. All of these can be constructed using Excel's Chart Tools.

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

68. To construct a bar chart using Excel's Chart Tools, choose _____ as the chart type.
    a. column
    b. pie
    c. scatter
    d. line

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

69. To construct a pie chart using Excel's Chart Tools, choose _____ as the chart type.
    a. column
    b. pie
    c. scatter
    d. line

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

70. To construct a histogram using Excel's Chart Tools, choose _____ as the chart type.
    a. column
    b. pie

c. scatter
d. line

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

71. Excel's Chart Tools does NOT have a chart type for constructing a _____.
a. bar chart
b. pie chart
c. histogram
d. stem-and-leaf display

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

72. A tabular method that can be used to summarize the data on two variables simultaneously is called _____.
a. simultaneous equations
b. a crosstabulation
c. a histogram
d. a dot plot

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

73. Excel's _____ can be used to construct a crosstabulation.
a. Chart Tools
b. SUM function
c. PivotTable report
d. COUNTIF function

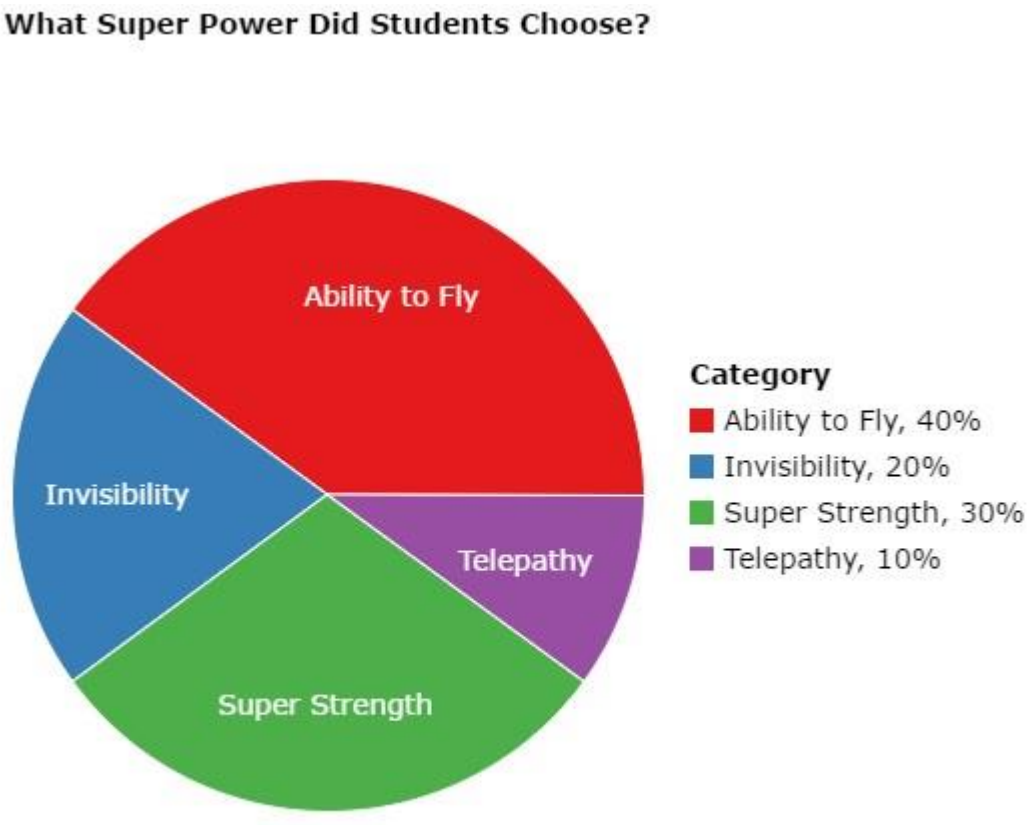
ANSWER: c
POINTS: 1
DIFFICULTY: Easy

REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

74. In a crosstabulation, _____.
a. both variables must be categorical
b. both variables must be quantitative
c. one variable must be categorical and the other must be quantitative
d. either or both variables can be categorical or quantitative

ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

75. In a class with 30 students, we ask, “If you could have any super power, what would it be?” Each student could only choose one super power. The resulting pie chart is below. The least popular choice of super power was _____.



a. ability to fly
b. telepathy
c. invisibility
d. super strength

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

76. In Excel, the line of best fit for the points in a scatter diagram is called a _____.
a. trendline
b. horizontal line
c. vertical line
d. fit line

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

77. When the conclusions based upon the aggregated crosstabulation can be completely reversed if we look at the unaggregated data, the occurrence is known as _____.
a. reverse correlation
b. inferential statistics
c. Simpson's paradox
d. disaggregation

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

78. Before drawing any conclusions about the relationship between two variables shown in a crosstabulation, you should _____.
a. investigate whether any hidden variables could affect the conclusions
b. construct a scatter diagram and find the trendline
c. develop a relative frequency distribution

d. construct an ogive for each of the variables

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

79. A histogram is NOT appropriate for displaying which of the following types of information?
a. frequency
b. relative frequency
c. cumulative frequency
d. percent frequency

ANSWER: c
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

80. For stem-and-leaf displays where the leaf unit is not stated, the leaf unit is assumed to equal _____.
a. 0
b. 0.1
c. 1
d. 10

ANSWER: c
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

81. Which of the following graphical methods is not intended for quantitative data?
a. ogive
b. dot plot
c. scatter diagram
d. pie chart

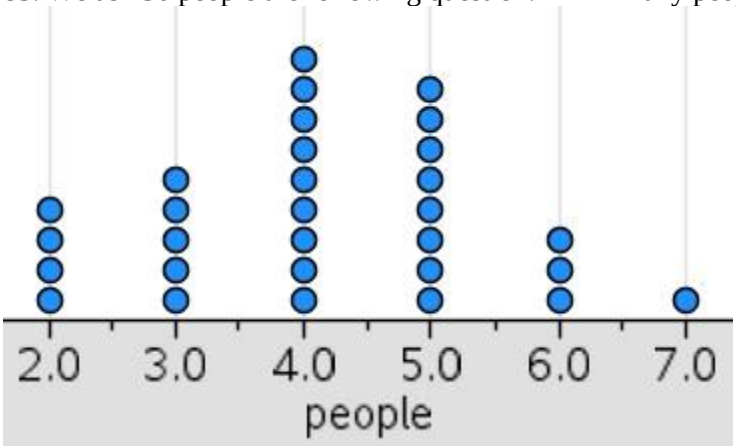
ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable

LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

82. Which of the following is LEAST useful in studying the relationship between two variables?
a. trendline
b. stem-and-leaf display
c. crosstabulation
d. scatter diagram

ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

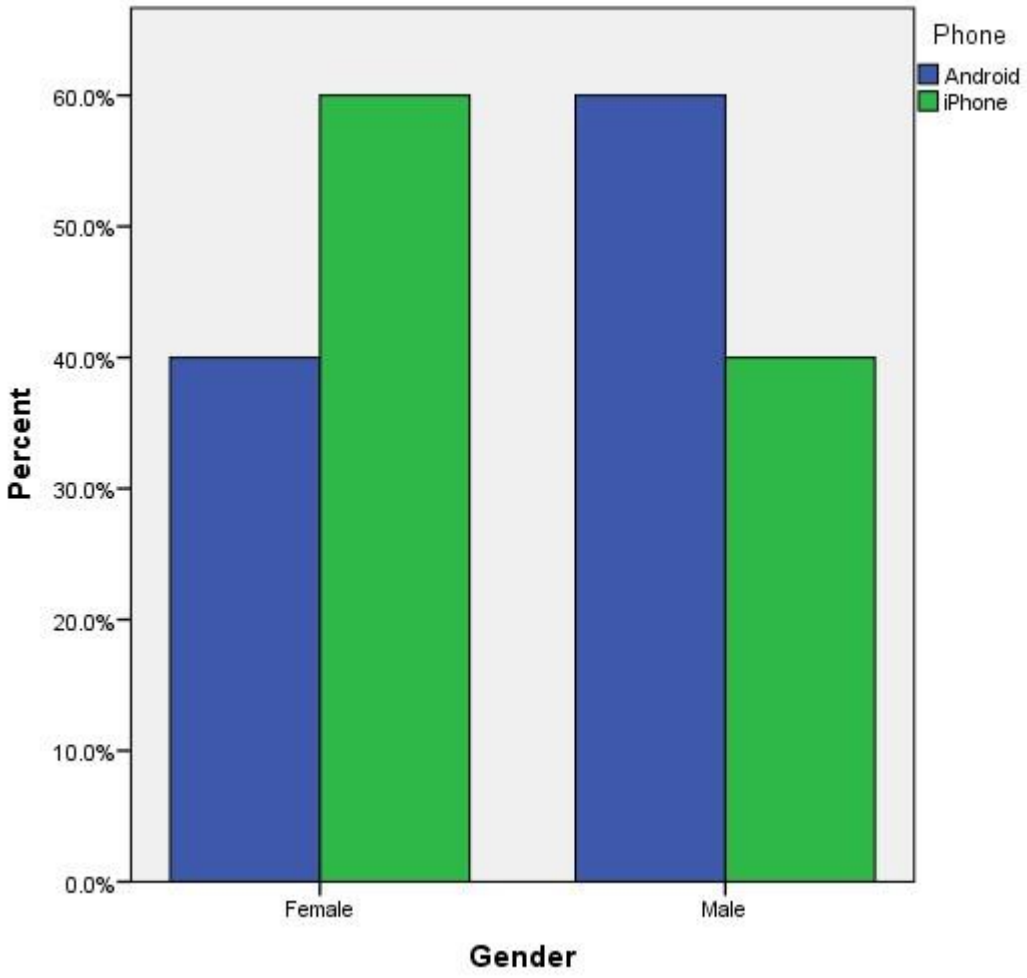
83. We ask 30 people the following question: “How many people do you live with?” Below are the results in a dot plot.



What percentage of people surveyed live with 3 or less people?
a. 30%
b. 40%
c. 50%
d. 90%

ANSWER: b
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

84. Do males prefer a particular type of smartphone more than females? A survey was conducted to help answer this question. The results are displayed below.



What type of phone do males prefer?

a. Android

b. iPhone

c. Males prefer Androids and iPhones equally.

d. cannot be determined based upon the information given in the graph

ANSWER: a
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

85. Thirty students in the School of Business were asked what their majors were. The following represents their responses (M = Management; A = Accounting; E = Economics; O = Other).

A	M	M	A	M	M	E	M	O	A
E	E	M	A	O	E	M	A	M	A
M	A	O	A	M	E	E	M	A	M

a. Construct a frequency distribution.

b. Construct a relative frequency distribution.

ANSWER:

a. and b.

Major	Frequency	Relative Frequency
M	12	0.4
A	9	0.3
E	6	0.2
O	3	0.1
Total	30	1.0

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

86. Twenty employees of ABC Corporation were asked if they liked or disliked the new district manager. Below are their responses. Let L represent liked and D represent disliked.

L	L	D	L	D
D	D	L	L	D
D	L	D	D	L
D	D	D	D	L

a. Construct a frequency distribution.
b. Construct a relative frequency distribution.

ANSWER:

a. and b.

Preferences	Frequency	Relative Frequency
L	8	0.4
D	12	0.6
Total	20	1.0

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

87. A student has completed 20 courses in the School of Arts and Sciences. Her grades in the 20 courses are shown below.

A	B	A	B	C
C	C	B	B	B
B	A	B	B	B
C	B	C	B	A

a. In what percent of her courses did she receive an A?
b. In what percent of her courses did she receive a B or better?

ANSWER:

Grade	Frequency	Relative Frequency
A	4	0.20
B	11	0.55
C	5	0.25
Total	20	1.00

a. 20%
b. 55%

POINTS: 1
DIFFICULTY: Hard
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

88. A sample of 50 TV viewers were asked, "Should TV sponsors pull their sponsorship from programs that draw numerous viewer complaints?" Below are the results of the survey. (Y = Yes; N = No; W = Without Opinion)

N	W	N	N	Y	N	N	N	Y	N
N	Y	N	N	N	N	N	Y	N	N
Y	N	Y	W	N	Y	W	W	N	Y
W	W	N	W	Y	W	N	W	Y	W
N	Y	N	Y	N	W	Y	Y	N	Y

a. What percentage of viewers feel that TV sponsors should pull their sponsorship from programs that draw numerous viewer complaints?
b. What percentage of viewers are without opinion?

ANSWER:

Response	Frequency	Relative Frequency
No	24	0.48
Yes	15	0.30
Without Opinion	11	0.22
Total	50	1.00

a. 30%
b. 22%

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

89. Forty shoppers were asked if they preferred the weight of a can of soup to be 6 ounces, 8 ounces, or 10 ounces. Below are their responses.

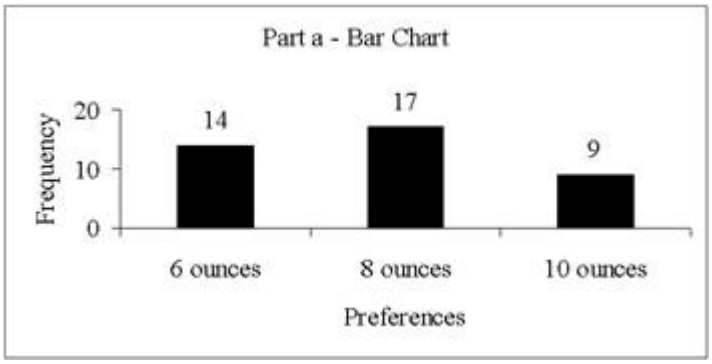
6	6	6	10	8	8	8	10	6	6
10	10	8	8	6	6	6	8	6	6
8	8	8	10	8	8	6	10	8	6
6	8	8	8	10	10	8	10	8	6

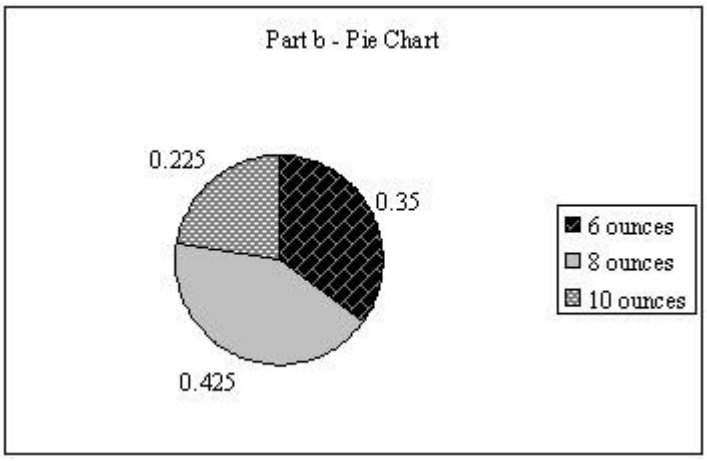
a. Construct a frequency distribution and graphically represent the frequency distribution.
b. Construct a relative frequency distribution and graphically represent the relative frequency distribution.

ANSWER:

a. and b.

Preferences	Frequency	Relative Frequency
6 ounces	14	0.350
8 ounces	17	0.425
10 ounces	9	0.225
Total	40	1.000





POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

90. There are 800 students in the School of Business Administration. There are four majors in the school: Accounting, Finance, Management, and Marketing. The following shows the number of students in each major.

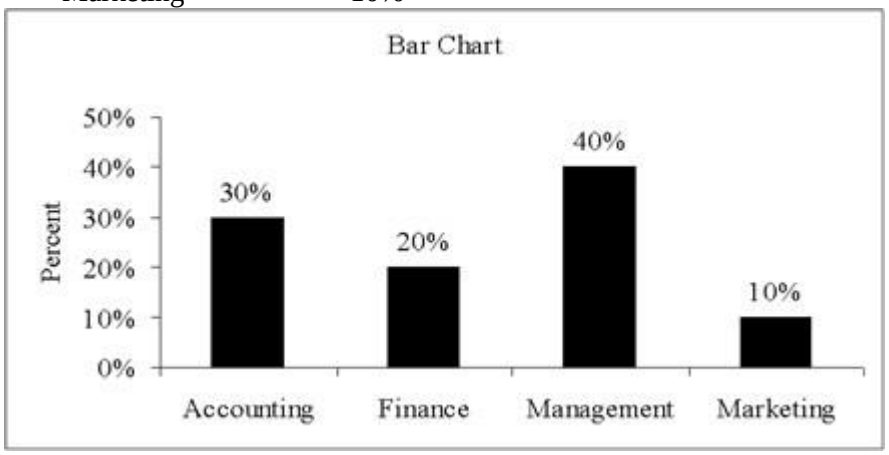
Major	Number of Students
Accounting	240
Finance	160

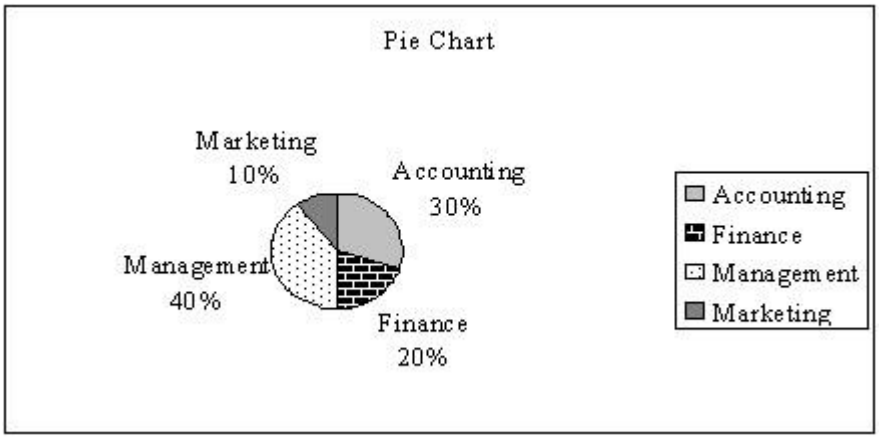
Management	320
Marketing	80

Develop a percent frequency distribution and construct a bar chart and a pie chart.

ANSWER:

Major	Percent Frequency
Accounting	30%
Finance	20%
Management	40%
Marketing	10%





POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

91. Below are the examination scores of 20 students.

52	99	92	86	84
63	72	76	95	88
92	58	65	79	80
90	75	74	56	99

a. Construct a frequency distribution for these data. Let the first class be 50–59 and draw a histogram.

b. Construct a cumulative frequency distribution.
c. Construct a relative frequency distribution.
d. Construct a cumulative relative frequency distribution.

ANSWER:

Score	a. Frequency	b. Cumulative Frequency	c. Relative Frequency	d. Cumulative Relative Frequency
50–59	3	3	0.15	0.15
60−69	2	5	0.10	0.25
70−79	5	10	0.25	0.50
80−89	4	14	0.20	0.70
90−99	6	20	0.30	1.00
Total	20		1.00	

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

92. Two hundred members of a fitness center were surveyed. One survey item stated, "The facilities are always clean." The members' responses to the item are summarized below. Fill in the missing value for the frequency distribution.

Opinion	Frequency
Strongly Agree	63
Agree	92
Disagree	
Strongly Disagree	15
No Opinion	14

ANSWER: 16
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

93. Fill in the missing value for the following relative frequency distribution.

Opinion	Relative Frequency
Strongly Agree	0.315
Agree	0.460
Disagree	
Strongly Disagree	0.075
No Opinion	0.070

ANSWER: 0.080
POINTS: 1
DIFFICULTY: Moderate

REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

94. Fill in the missing value for the following percent frequency distribution.

Annual Salaries	Percent Frequency
Under $30,000	10
$30,000−$49,999	35
$50,000−$69,999	40
$70,000 −$89,999	
$90,000 and over	5

ANSWER: 10
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

95. The following is a summary of the number of hours spent per day watching television for a sample of 100 people. What is wrong with the frequency distribution?

Hours/Day	Frequency
0−1	10
1−3	45
3−5	20
5−7	20
7−9	5

ANSWER: The classes overlap.
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

96. A summary of the results of a job satisfaction survey follows. What is wrong with the relative frequency distribution?

Rating	Relative Frequency
Poor	0.15
Fair	0.45
Good	0.25
Excellent	0.30

ANSWER: The relative frequencies do not sum to 1.
POINTS: 1

DIFFICULTY: Moderate
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

97. The frequency distribution below was constructed from data collected from a group of 25 students.

Height (inches)	Frequency
58−63	3
64−69	5
70−75	2
76−81	6
82−87	4
88−93	3
94−99	2

a. Construct a relative frequency distribution.
b. Construct a cumulative frequency distribution.
c. Construct a cumulative relative frequency distribution.

ANSWER:

Height (inches)	Frequency	a. Relative Frequency	b. Cumulative Frequency	c. Cumulative Relative Frequency
58−63	3	0.12	3	0.12
64−69	5	0.20	8	0.32
70−75	2	0.08	10	0.40
76−81	6	0.24	16	0.64
82−87	4	0.16	20	0.80
88−93	3	0.12	23	0.92
94−99	2	0.08	25	1.00
		1.00		

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

98. The frequency distribution below was constructed from data collected on the quarts of soft drink consumed per week by 20 students.

Quarts of Soft Drink	Frequency
0−3	4
4−7	5
8−11	6
12−15	3
16−19	2

a. Construct a relative frequency distribution.
b. Construct a cumulative frequency distribution.

c. Construct a cumulative relative frequency distribution.

ANSWER:

Quarts of Soft Drink	a. Relative Frequency	b. Cumulative Frequency	c. Cumulative Relative Frequency
0−3	0.20	4	0.20
4−7	0.25	9	0.45
8−11	0.30	15	0.75
12−15	0.15	18	0.90
16−19	0.10	20	1.00
Total	1.00		

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

99. The grades of 10 students on their first management test are shown below.

94	61	96	66	92
68	75	85	84	78

a. Construct a frequency distribution. Let the first class be 60−69.
b. Construct a cumulative frequency distribution.
c. Construct a relative frequency distribution.

ANSWER:

Class	a. Frequency	b. Cumulative Frequency	c. Relative Frequency
60−69	3	3	0.3
70−79	2	5	0.2
80−89	2	7	0.2
90−99	3	10	0.3
Total	10		1.0

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

100. You are given the following data on the ages of employees at a company. Construct a stem-and-leaf display. Specify the leaf unit for the display.

26	32	28	45	58
52	44	36	42	27
41	53	55	48	32
42	44	40	36	37

ANSWER:

Leaf Unit = 1

2 | 6	7	8				
3 | 2	2	6	6	7		
4 | 0	1	2	4	4	5	8
5 | 2	3	5	8			

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

101. Construct a stem-and-leaf display for the following data. Specify the leaf unit for the display.

12	52	51	37	47	40	38	26	57	31
49	43	45	19	36	32	44	48	22	18

ANSWER:

Leaf Unit = 1

1 | 2	8	9				
2 | 2	6					
3 | 1	2	6	7	8		
4 | 0	3	4	5	7	8	9
5 | 1	2	7				

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

102. You are given the following data on the earnings per share for 10 companies. Construct a stem-and-leaf display. Specify the leaf unit for the display.

2.6	1.4	1.3	0.5	2.2
1.1	1.1	0.7	0.9	2.0

ANSWER:

Leaf Unit = 0.1

0 | 5	7	9		
1 | 1	1	3	4	
2 | 0	2	6		

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

103. You are given the following data on the annual salaries for 8 employees. Construct a stem-and-leaf display. Specify

the leaf unit for the display.

$26,500	$27,850	$25,000	$27,460
$26,890	$25,400	$26,150	$30,000

ANSWER:

Leaf Unit = 100

25	0	4		
26	1	5	8	
27	4	8		
28				
29				
30	0			

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

104. You are given the following data on the price/earnings (P/E) ratios for 12 companies. Construct a stem-and-leaf display. Specify the leaf unit for the display.

23	25	39	47	22	37
8	36	48	28	37	26

ANSWER:

Leaf Unit = 1

0	8				
1					
2	2	3	5	6	8
3	6	7	7	9	
4	7	8			

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

105. You are given the following data on times (in minutes) to complete a race. Construct a stem-and-leaf display. Specify the leaf unit for the display.

15.2	15.8	12.4	11.9	15.2
14.7	14.8	11.8	12.0	12.1

ANSWER:

Leaf Unit = 0.1

11	8	9		
12	0	1	4	
13				
14	7	8		
15	2	2	8	

POINTS: 1

DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

106. The SAT math scores of a sample of business school students and their genders are shown below.

SAT Math Scores

Gender	Less than 400	400 up to 600	600 and more	Total
Female	24	168	48	240
Male	40	96	24	160
Total	64	264	72	400

a. How many students scored less than 400?
b. How many students were female?
c. Of the male students, how many scored 600 or more?
d. Compute row percentages and comment on any relationship that may exist between SAT math scores and gender of the individuals.
e. Compute column percentages.

ANSWER:

a. 64
b. 240
c. 24
d.

	SAT Math Scores			
Gender	Less than 400	400 up to 600	600 and more	Total
Female	10%	70%	20%	100%
Male	25%	60%	15%	100%

From the above percentages, it can be noted that the largest percentages of both genders' SAT scores are in the 400 to 600 range. However, 70% of females and only 60% of males have SAT scores in this range. Also it can be noted that 10% of females' SAT scores are under 400, whereas 25% of males' SAT scores fall in this category.

e.

	SAT Math Scores		
Gender	Less than 400	400 up to 600	600 and more
Female	37.5%	63.6%	66.7%
Male	62.5%	36.4%	33.3%
Total	100%	100%	100%

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable

LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

107. A market research firm has conducted a study to determine consumer preference for a new package design for a particular product. The consumer's age was also noted.

	Package Design			
Age	A	B	C	Total
Under 25	18	18	29	65
25−40	18	12	5	35
Total	36	30	34	100

a. Which package design was most preferred overall?
b. What percent of those participating in the study preferred Design A?
c. What percent of those under 25 years of age preferred Design A?
d. What percent of those aged 25 − 40 preferred Design A?
e. Is the preference for Design A the same for both age groups?

ANSWER:
a. Design A
b. 36%
c. 27.7%
d. 51.4%
e. No, although both groups have 18 people who prefer Design A, the percentage of those in the "Under 25" age group who prefer Design A is smaller than that of the "25−40" age group (27.7% vs. 51.4%).

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

108. Partial results of a study follow in a crosstabulation of column percentages.

	Method of Payment		
Gender	Cash	Credit Card	Check
Female	18%	50%	90%
Male	82%	50%	10%
Total	100%	100%	100%

a. Interpret the 18% found in the first row and first column of the crosstabulation.
b. If 50 of those in the study paid by check, how many of the males paid by check?

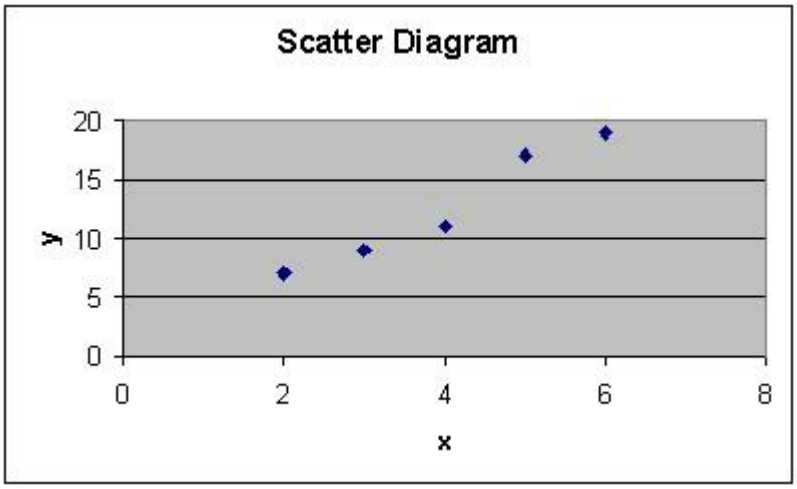
ANSWER:
a. Of those who pay with cash, 18% are female.
b. 5

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

109. For the following observations, plot a scatter diagram and indicate what kind of relationship (if any) exists between *x* and *y*.

x	*y*
2	7
6	19
3	9
5	17
4	11

ANSWER: A positive relationship between *x* and *y* appears to exist.



POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

110. For the following observations, indicate what kind of relationship (if any) exists between women's height (inches) and annual starting salary ($1000s).

Height	Salary
64	45
63	40
68	39
65	38
67	42
66	45
65	43

64	35
66	33

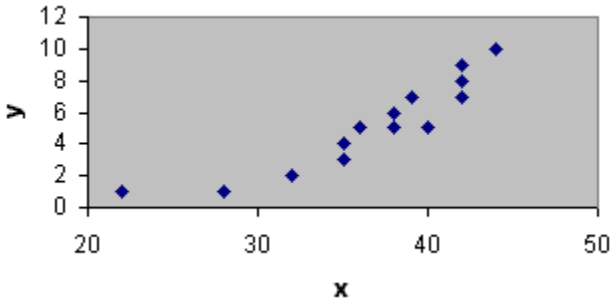
ANSWER: No relationship between women's heights and salaries appears to exist.
POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

111. For the following observations, indicate what kind of relationship (if any) exists between the amount of sugar in one serving of cereal (grams) and the amount of fiber in one serving of cereal (grams).

Sugar	Fiber
1.2	3.2
1.3	3.1
1.5	2.8
1.8	2.4
2.2	1.1
2.8	1.3
3.0	1.0

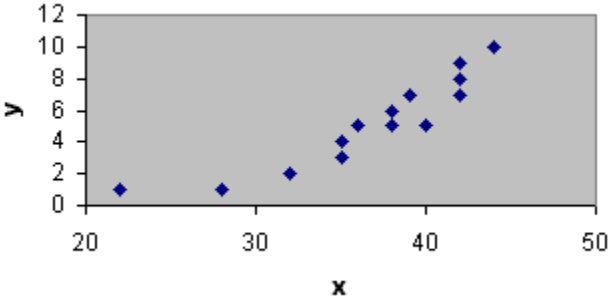
ANSWER: A negative relationship between amount of sugar and amount of fiber appears to exist.
POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

112. What type of graph is depicted below?



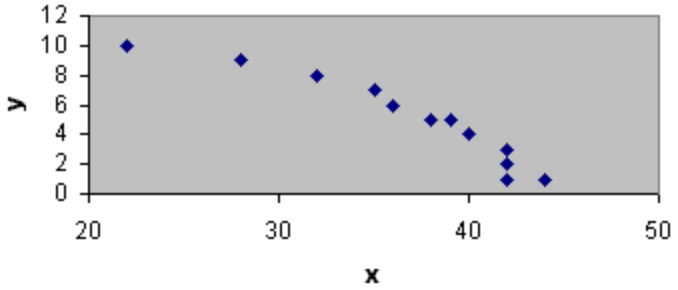
ANSWER: A scatter diagram
POINTS: 1
DIFFICULTY: Easy
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Knowledge

113. What type of relationship is depicted in the following scatter diagram?



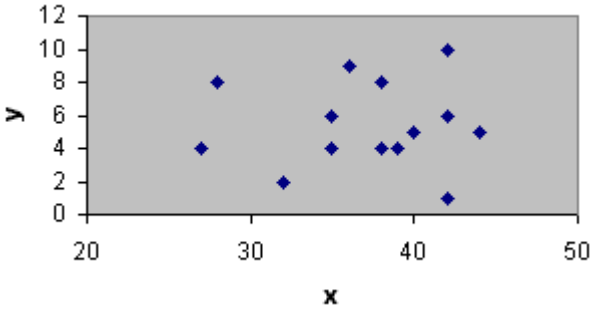
ANSWER: A positive relationship
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

114. What type of relationship is depicted in the following scatter diagram?



ANSWER: A negative relationship
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

115. What type of relationship is depicted in the following scatter diagram?



ANSWER: No apparent relationship
POINTS: 1
DIFFICULTY: Moderate
REFERENCES: Summarizing Data for Two Variables Using Graphical Displays
LEARNING OBJECTIVES: MBST.ASWC.18.02.04 - 2.4
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Comprehension

116. It is time for Roger Hall, manager of new car sales at the Maxwell Ford dealership, to submit his order for new Mustang coupes. These cars will be parked in the lot, available for immediate sale to buyers who are not special-ordering a car. Roger must decide how many Mustangs of each color he should order. The new color options are very similar to the past year's options.

Roger believes the colors chosen by customers who special-order their cars best reflect most customers' true color preferences. He has taken a random sample of 40 special orders for Mustang coupes placed in the past year. The color preferences found in the sample are listed below.

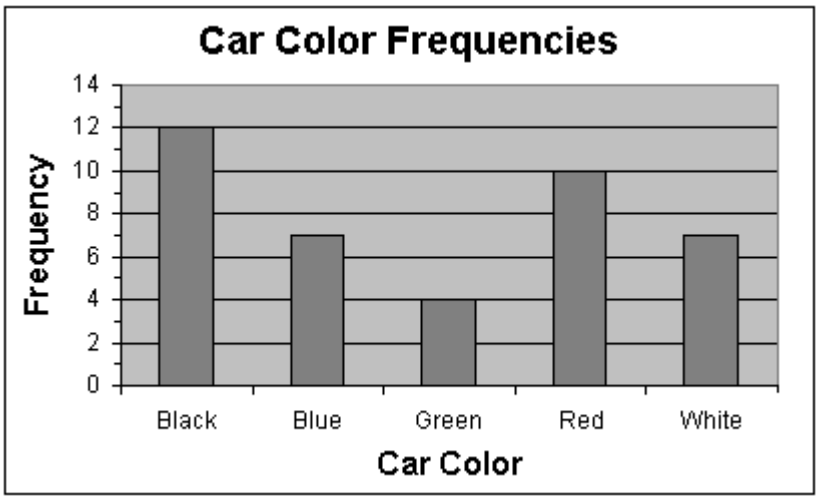
Blue	Black	Green	White	Black	Red	Red	White
Black	Red	White	Blue	Blue	Green	Red	Black
Red	White	Blue	White	Red	Red	Black	Black
Green	Black	Red	Black	Blue	Black	White	Green
Blue	Red	Black	White	Black	Red	Black	Blue

a. Prepare a frequency distribution, relative frequency distribution, and percent frequency distribution for the data set.
b. Construct a bar chart showing the frequency distribution of the car colors.
c. Construct a pie chart showing the percent frequency distribution of the car colors.

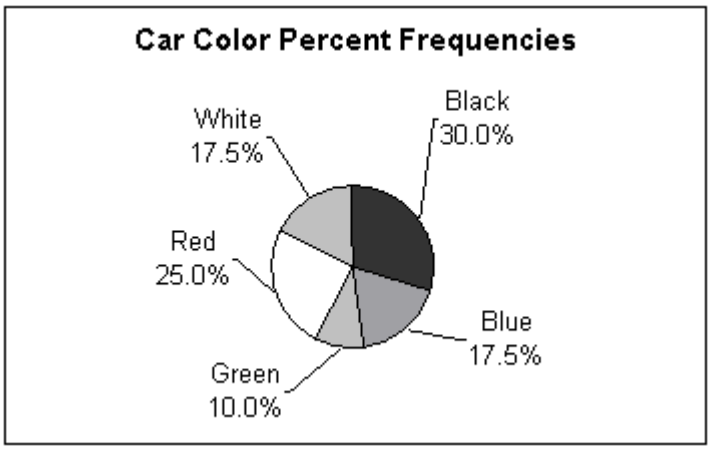
ANSWER: a.

Color of Car	Frequency	Relative Frequency	Percent Frequency
Black	12	0.300	30.0
Blue	7	0.175	17.5
Green	4	0.100	10.0
Red	10	0.250	25.0
White	7	0.175	17.5
Total	40	1.000	100.0

b.



c.



POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

117. Missy Walters owns a mail-order business specializing in clothing, linens, and furniture for children. She is considering offering her customers a discount on shipping charges for furniture based on the dollar amount of the furniture order. Before Missy decides the discount policy, she needs a better understanding of the dollar amount distribution of the furniture orders she receives.

Missy had an assistant randomly select 50 recent orders that included furniture. The assistant recorded the value, to the nearest dollar, of the furniture portion of each order. The data collected are listed below.

136	281	226	123	178	445	231	389	196	175
211	162	212	241	182	290	434	167	246	338
194	242	368	258	323	196	183	209	198	212
277	348	173	409	264	237	490	222	472	248
231	154	166	214	311	141	159	362	189	260

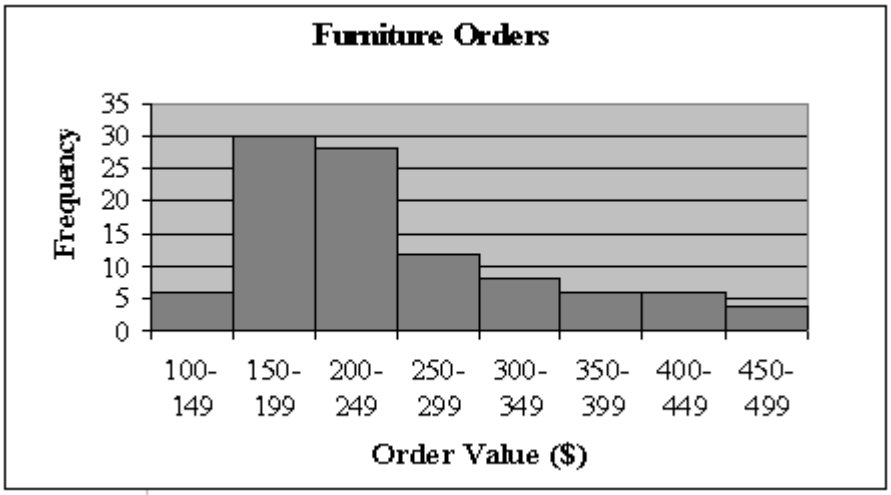
a. Prepare a frequency distribution, relative frequency distribution, and percent frequency distribution for the data set

using a class width of $50.
b. Construct a histogram showing the percent frequency distribution of the furniture-order values in the sample.
c. Develop a cumulative frequency distribution and a cumulative percent frequency distribution for these data.

ANSWER: a.

Furniture Order	Frequency	Relative Frequency	Percent Frequency
100−149	3	0.06	6
150−199	15	0.30	30
200−249	14	0.28	28
250−299	6	0.12	12
300−349	4	0.08	8
350−399	3	0.06	6
400−449	3	0.06	6
450−499	2	0.04	4

b.



c.

Furniture Order	Frequency	Cumulative Frequency	Cumulative Percent Frequency
100−149	3	3	6
150−199	15	18	36
200−249	14	32	64
250−299	6	38	76
300−349	4	42	84
350−399	3	45	90
400−449	3	48	96
450−499	2	50	100

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Quantitative Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

118. Develop a stretched stem-and-leaf display for the data set below, using a leaf unit of 10.

136	281	226	123	178	445	231	389	196	175
211	162	212	241	182	290	434	167	246	338
194	242	368	258	323	196	183	209	198	212
277	348	173	409	264	237	490	222	472	248
231	154	166	214	311	141	159	362	189	260

ANSWER: Leaf Unit = 10

1	2	3	4												
1	5	5	6	6	6	7	7	7	8	8	8	9	9	9	9
2	0	1	1	1	1	2	2	3	3	3	4	4	4	4	
2	5	6	6	7	8	9									
3	1	2	3	4											
3	6	6	8												
4	0	3	4												
4	7	9													

POINTS: 1

DIFFICULTY: Challenging

REFERENCES: Summarizing Data for a Quantitative Variable

LEARNING OBJECTIVES: MBST.ASWC.18.02.02 - 2.2

NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking

KEYWORDS: Bloom's: Analysis

119. Guests staying at Marada Inn were asked to rate the quality of their accommodations as being excellent, above average, average, below average, or poor. The ratings provided by a sample of 20 quests are shown below.

Below Average	Average	Above Average	Above Average
Above Average	Above Average	Above Average	Below Average
Below Average	Average	Poor	Poor
Above Average	Average	Above Average	Average
Excellent	Above Average	Average	Above Average

a. Provide a frequency distribution showing the number of occurrences of each rating level in the sample.

b. Construct relative frequency and percent frequency distributions for the data.

c. Display the frequencies graphically with a bar graph.

d. Display the percent frequencies graphically with a pie chart.

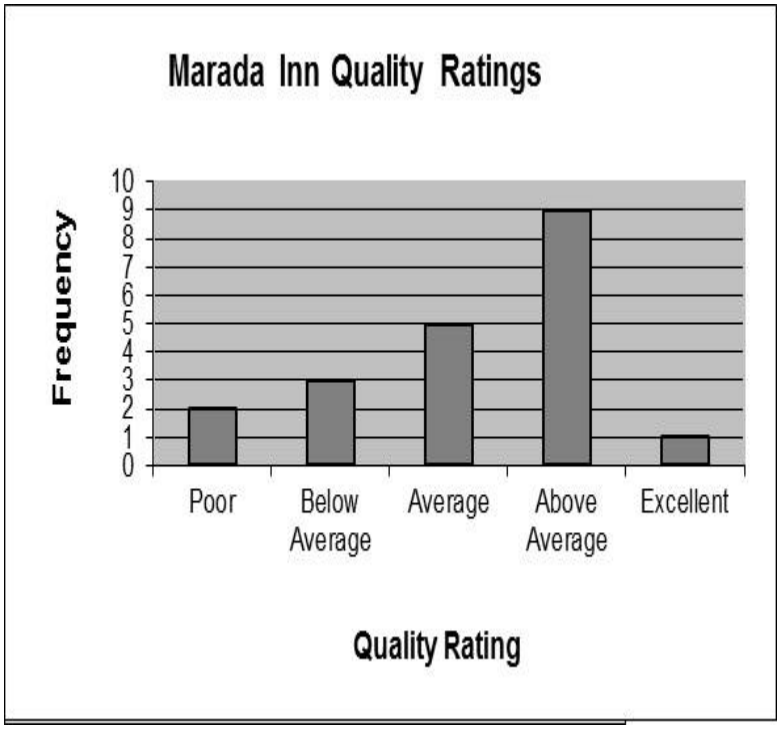
ANSWER: a.

Quality Rating	Frequency
Poor	2
Below Average	3
Average	5
Above Average	9
Excellent	1
Total	20

b.

Quality Rating	Relative Frequency	Percent Frequency
Poor	0.10	10
Below Average	0.15	15
Average	0.25	25
Above Average	0.45	45
Excellent	0.05	5
Total	1.00	100

c.



d.

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for a Categorical Variable
LEARNING OBJECTIVES: MBST.ASWC.18.02.01 - 2.1
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

120. Ithaca Log Homes manufactures four styles of log houses that are sold in kits. The price ($1000s) and style of homes the company has sold in the past year are shown below.

Price	Style	Price	Style	Price	Style
≤99	Colonial	≥100	A-Frame	≥100	Colonial
≤99	Ranch	≥100	Split-Level	≤99	Colonial
≥100	Split-Level	≤99	Colonial	≤99	A-Frame
≥100	Split-Level	≥100	Ranch	≥100	Split-Level
≤99	Colonial	≥100	Colonial	≥100	Ranch
≤99	A-Frame	≤99	A-Frame	≤99	Split-Level
≤99	Split-Level	≤99	Split-Level	≥100	Split-Level
≤99	A-Frame	≤99	Split-Level	≥100	Colonial
≥100	Ranch	≤99	Colonial	≥100	Ranch
≥100	Split-Level	≤99	Ranch	≥100	Split-Level
≤99	A-Frame	≥100	Split-Level	≤99	Colonial
≤99	Colonial	≥100	Colonial	≥100	Colonial
≥100	Ranch	≤99	Split-Level	≤99	Split-Level
≤99	Colonial				

Prepare a crosstabulation for the variables price and style.

ANSWER:

Count of Home	Style				
Price ($1000s)	Colonial	Ranch	Split-Level	A-Frame	Grand Total
≤99	8	2	6	5	21
≥100	5	5	8	1	19
Grand Total	13	7	14	6	40

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis

121. Tony Zamora, a real estate investor, has just moved to Clarksville and wants to learn about the local real estate market. He wants to understand, for example, the relationship between geographical segment of the city and selling price of a house, the relationship between selling price and number of bedrooms, and so on. Tony has randomly selected 25 house-for-sale listings from the Sunday newspaper and collected the data listed below.

Segment of City	Selling Price ($000)	House Size (00 sq. ft.)	Number of Bedrooms	Number of Bathrooms	Garage Size (cars)
Northwest	290	21	4	2	2
South	95	11	2	1	0
Northeast	170	19	3	2	2
Northwest	375	38	5	4	3
West	350	24	4	3	2
South	125	10	2	2	0
West	310	31	4	4	2
West	275	25	3	2	2
Northwest	340	27	5	3	3
Northeast	215	22	4	3	2
Northwest	295	20	4	3	2
South	190	24	4	3	2
Northwest	385	36	5	4	3
West	430	32	5	4	2
South	185	14	3	2	1
South	175	18	4	2	2
Northeast	190	19	4	2	2
Northwest	330	29	4	4	3
West	405	33	5	4	3
Northeast	170	23	4	2	2
West	365	34	5	4	3
Northwest	280	25	4	2	2
South	135	17	3	1	1
Northeast	205	21	4	3	2
West	260	26	4	3	2

a. Construct a crosstabulation for the variables segment of city and number of bedrooms.

b. Compute the row percentages for your crosstabulation in part (a).

c. Comment on any apparent relationship between the variables.

ANSWER: a. CROSSTABULATION

Count of Home	Number of Bedrooms				
Segment of City	2	3	4	5	Grand Total
Northeast	0	1	4	0	5
Northwest	0	0	4	3	7
South	2	2	2	0	6
West	0	1	3	3	7
Grand Total	2	4	13	6	25

b. ROW PERCENTAGES

Percent of Home	Number of Bedrooms				
Segment of City	2	3	4	5	Grand Total
Northeast	0.0	20.0	80.0	0.0	100.0
Northwest	0.0	0.0	57.1	42.9	100.0
South	33.3	33.3	33.3	0.0	100.0
West	0.0	14.3	42.9	42.9	100.1

c. We see that fewest bedrooms are associated with the South, and the most bedrooms are

associated with the West and particularly the Northwest.

POINTS: 1
DIFFICULTY: Challenging
REFERENCES: Summarizing Data for Two Variables Using Tables
LEARNING OBJECTIVES: MBST.ASWC.18.02.03 - 2.3
NATIONAL STANDARDS: United States - Business Program.1: - Reflective Thinking
KEYWORDS: Bloom's: Analysis