Statistics for Management and Economics Abbreviated 10th edition Gerald Keller Test Bank

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CHAPTER 2: GRAPHICAL DESCRIPTIVE TECHNIQUES I

TRUE/FALSE

1. Your age group (1-9; 10-19; 20-29; 30-39; etc.) is an interval variable.

   ANS: F PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

2. Your gender is a nominal variable.

   ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

3. Your final grade in a course (A, B, C, D, E) is a nominal variable.

   ANS: F PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

4. Your age is an interval variable.

   ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

5. Interval data may be treated as ordinal or nominal.

   ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Knowledge

6. Whether or not you are over the age of 21 is a nominal variable.

   ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

7. The values of quantitative data are categories.

   ANS: F PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Knowledge

8. Interval data, such as heights, weights, incomes, and distances, are also referred to as quantitative or numerical data.

   ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Knowledge

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9. All calculations are permitted on interval data.

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10. Nominal data are also called qualitative or categorical.

ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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11. A variable is some characteristic of a population or sample.

ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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12. With nominal data, there is one and only one way the possible values can be ordered.

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NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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13. You cannot calculate and interpret differences between numbers assigned to ordinal data.

ANS: T PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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MULTIPLE CHOICE

1. The classification of student major (accounting, economics, management, marketing, other) is an example of a(n)
   a. nominal random variable.
   b. interval random variable.
   c. continuous random variable.
   d. parameter.

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2. The classification of student class designation (freshman, sophomore, junior, senior) is an example of a(n)
   a. nominal random variable.
   b. interval random variable.
   c. ordinal random variable.
   d. a parameter.

ANS: C PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
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KEY: Bloom's: Comprehension

3. A researcher wishes to estimate the textbook costs of first-year students at Barry University. To do so, he recorded the textbook cost of 300 first-year students and found that their average textbook cost was $195 per semester. The variable of interest to the researcher is

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a. textbook cost.
b. class rank.
c. number of students.
d. name of university.

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4. All calculations are permitted on what type of data?
a. Interval data
b. Nominal data
c. Ordinal data
d. All of these choices are true.

ANS: A PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

5. Values must represent ordered rankings for what type of data?
a. Interval data
b. Nominal data
c. Ordinal data
d. None of these choices.

ANS: C PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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6. For what type of data are frequencies the only calculations that can be done?
a. Interval data
b. Nominal data
c. Ordinal data
d. None of these choices.

ANS: B PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
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7. For which type of data are the values arbitrary numbers?
a. Interval data
b. Nominal data
c. Ordinal data
d. None of these choices.

ANS: B PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
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KEY: Bloom's: Knowledge

COMPLETION

1. The Chief of Police conducted a survey of the officers on his squad. An officer's shooting score at target practice is an example of a(n) _____ variable.

ANS:
interval
quantitative
numerical

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2. The Dean of Students conducted a survey on campus. The gender of each student is an example of a(n) _____ variable.

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ANS:
nominal
categorical
qualitative

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3. The Dean of Students conducted a survey on campus. Class rank (Freshman, Sophomore, Junior, and Senior) is an example of a(n) _____ variable.

ANS: ordinal

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

4. The final grade received in a Literature course (A, B, C, D, or F) is an example of a(n) _____ variable.

ANS:
nominal
categorical
qualitative

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

5. In purchasing a used computer, there are a number of variables to consider. The age of the computer is an example of a(n) _____ variable.

ANS:
interval
quantitative
numerical

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

6. In purchasing an automobile, there are a number of variables to consider. The body style of the car (sedan, coupe, wagon, etc.) is an example of a(n) _____ variable.

ANS:
nominal
categorical
qualitative

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.01
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SHORT ANSWER

1. At the end of a safari, the tour guide asks the vacationers to respond to the questions listed below. For each question, determine whether the possible responses are interval, nominal, or ordinal.

   a. How many safaris have you taken prior to this one?
   b. Do you feel that your tour safari lasted sufficiently long (yes/no)?
   c. Which of the following features of the accommodations did you find most attractive: location, facilities, room size, service, or price?
   d. What is the maximum number of hours per day that you would like to spend traveling?
   e. Is your overall rating of this safari: excellent, good, fair, or poor?

   ANS:

   a. Interval
   b. Nominal
   c. Nominal
   d. Interval
   e. Ordinal

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   KEY: Bloom's: Comprehension

2. Before leaving a particular restaurant, customers are asked to respond to the questions listed below. For each question, determine whether the possible responses are interval, nominal, or ordinal.

   a. What is the approximate distance (in miles) between this restaurant and your residence?
   b. Have you ever eaten at this restaurant before?
   c. On how many occasions have you eaten at the restaurant before?
   d. Which of the following attributes of this restaurant do you find most attractive: service, prices, quality of the food, or the menu?
   e. What is your overall rating of the restaurant: excellent, good, fair, or poor?

   ANS:

   a. Interval
   b. Nominal
   c. Interval
   d. Nominal
   e. Ordinal

   PTS: 1 DIF: Moderate OBJ: SFME.KELL.15.02.01
   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

3. For each of the following examples, identify the data type as nominal, ordinal, or interval.

   a. The final grade received by a student in a neuro-science class.
   b. The number of students in a Physics course.
   c. The starting salary of a PhD graduate.
   d. The size of an order of fries (small, medium, large, super-size) purchased by a Burger

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King customer.
e. The college you are enrolled in (Arts and Sciences, Business, Education, etc.).

ANS:

a. Ordinal
b. Interval
c. Interval
d. Ordinal
e. Nominal

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4. For each of the following, indicate whether the variable of interest is nominal or interval.

a. Your marital status.
b. Whether you are a U.S. citizen.
c. Sally's travel time from her dorm to the student union on campus.
d. The amount of time you spent last week on your homework.
e. The number of cars parked in a certain parking lot at any given time.
f. Kate’s favorite brand of sneakers.

ANS:

a. Nominal
b. Nominal
c. Interval
d. Interval
e. Interval
f. Nominal

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KEY: Bloom's: Comprehension

5. Provide one example of ordinal data; one example of nominal data; and one example of interval data.

ANS:

Ordinal data example: Response to a market research survey question measured on the Likert scale using the code: 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, and 5 = strongly disagree.

Nominal data example: Voters’ political party affiliation for using the code: 1 = Democrat, 2 = Republican, and 3 = Independent.

Interval data example: The temperature on a golf course during the U.S. Master’s Tournament. (degrees Fahrenheit).

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6. Explain why religious preference is not an ordinal variable.

   ANS:
   The values of religious preference cannot be ranked in order in any way.

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   NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
   KEY: Bloom's: Comprehension

7. Explain the difference between ordinal data and interval data.

   ANS:
   The critical difference between them is that the intervals or differences between values of interval data are consistent and meaningful. That is, we can calculate the difference and interpret the results. Because the codes representing ordinal data are arbitrarily assigned except for the order, we cannot calculate and interpret differences.

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8. Give an example of interval data that can also be treated as ordinal data and nominal data.

   ANS:
   Example: Your actual age is interval data; your age group (1-17; 18-24; 25-30; etc.) is ordinal data; and whether or not you are over age 25 is nominal data.

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   KEY: Bloom's: Comprehension

9. A bar chart is used to represent interval data.

   ANS:
   F

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   KEY: Bloom's: Knowledge

10. One of the advantages of a pie chart is that it clearly shows that the total percentages of all the categories add to 100%.

    ANS:
    T

    PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
    NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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11. Bar and pie charts are graphical techniques for nominal data. The former focus the attention on the *frequency* of the occurrences of each category, and the later emphasizes the *proportion* of occurrences of each category.

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ANS:
T

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KEY: Bloom's: Knowledge

12. A relative frequency distribution lists the categories and their counts.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

13. A frequency distribution lists the categories and the proportion with which each occurs.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
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KEY: Bloom's: Knowledge

14. From a pie chart you are able to find the frequency for each category.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

15. Which of the following statements about pie charts is false?
    a. A pie chart is a graphical representation of a relative frequency distribution.
    b. You can always determine frequencies for each category by looking at a pie chart.
    c. The total percentage of all the slices of a pie chart is 100%.
    d. The area of a slice of a pie chart is the proportion of all the individuals that fall into that particular category.

ANS:
B

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

16. Which of the following situations is best suited for a pie chart?
    a. The number of dollars spent this year on each type of legal gambling.
    b. The percentage of a charitable donation that goes to administrative costs vs. directly to the charity.

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c. The number of students in your class who received an A, B, C, D, F on their exam.
d. All of these choices are true.

ANS:
B

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KEY: Bloom's: Comprehension

17. Which situation identifies when to use pie charts and/or bar charts?
a. You want to describe a single set of data.
b. Your data is nominal.
c. You want to show the number or the percentage of individuals in each category.
d. All of these choices are true.

ANS:
D

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
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KEY: Bloom's: Comprehension

18. Suppose you measure the number of minutes it takes an employee to complete a task, where the maximum allowed time is 5 minutes, and each time is rounded to the nearest minute. Data from 130 employees is summarized below. How long did it take most employees to complete the task?

Time (minutes)	1	2	3	4	5
Frequency	25	40	50	35	30

a. 5 minutes
b. 3 minutes
c. 30 minutes
d. 50 minutes

ANS:
B

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
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KEY: Bloom's: Comprehension

19. Car buyers were asked to indicate the car dealer they believed offered the best overall service. The four choices were Contour Motors (C), Modern Chrysler (M), Tonneau Auto (T), and Uncanny Chevrolet (U). The following data were obtained:

T C C C U C M T C U
U M C M T C M M C M
T C C T U M M C C T
T U C U T M M C U T

What percentage of car buyers identified Contour Motors as having the best overall service?
a. 1/4 = 0.25 or 25%

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b. 14/40 = 0.35 or 35%
c. 14%
d. None of these choices.

ANS:
B

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NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

20. Two types of graphs that organize nominal data are _____ and _____.

ANS:
pie chart; bar chart
bar chart; pie chart

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

21. A bar chart is used to represent _____ data.

ANS:
nominal
categorical
qualitative

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

22. A pie chart is used to represent _____ data.

ANS:
nominal
categorical
qualitative

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

23. A(n) _____ chart is often used to display frequencies; a(n) _____ chart graphically shows relative frequencies.

ANS:
bar; pie

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24. A pie chart shows the _____ of individuals that fall into each category.

ANS:
percentage
relative frequency
proportion

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KEY: Bloom's: Knowledge

25. We can summarize nominal data in a table that presents the categories and their counts. This table is called a(n) _____ distribution.

ANS:
frequency

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

26. A(n) _____ distribution lists the categories of a nominal variable and the proportion with which each occurs.

ANS:
relative frequency

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
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KEY: Bloom's: Knowledge

27. A(n) _____ chart is not able to show frequencies. It can only show relative frequencies.

ANS:
pie

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

28. In a pie chart, each slice is proportional to the _____ of individuals in that category.

ANS:
percentage
proportion
relative frequency

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
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29. A category in a pie chart that contains 50% of the observations is represented by a slice of the pie that is equal to _____ degrees.

ANS:
180

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KEY: Bloom's: Comprehension

30. Identify the type of data for which each of the following graphs is appropriate.

a. Pie chart
b. Bar chart

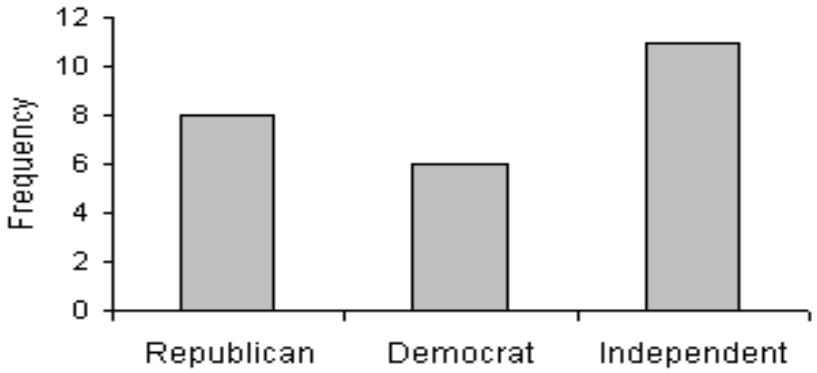
ANS:

a. Nominal
b. Nominal

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

31. Twenty-five voters participating in a recent election exit poll in Minnesota were asked to state their political party affiliation. Coding the data as R for Republican, D for Democrat, and I for Independent, the data collected were as follows: I, R, D, I, R, I, I, D, R, I, I, D, R, R, I, D, I, R, I, D, I, D, R, R, and I. Construct a frequency bar chart from this data. What does the bar chart tell you about the political affiliations of those in this sample?

ANS:



The bar graph shows most of the people surveyed were Independents (11 out of 25 = 44.0%); Republications followed with 8/25 = 32.0% and Democrats made up 6 of the 25, or 24.0%.

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
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KEY: Bloom's: Application

Car Buyers

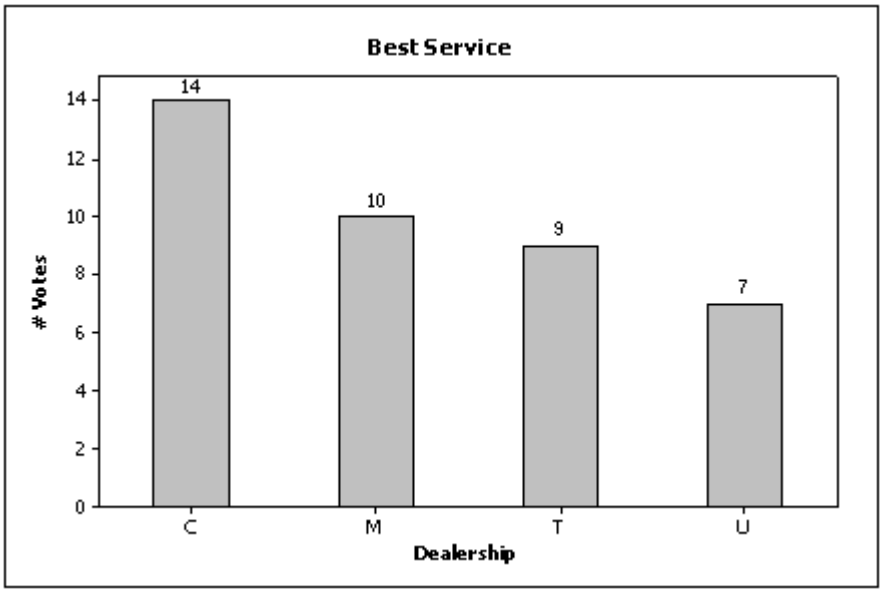
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Forty car buyers were asked to indicate which car dealer offered the best overall service. The four choices were Contour Motors (C), Modern Chrysler (M), Tonneau Auto (T), and Uncanny Chevrolet (U). The following data were obtained:

T	C	C	C	U	C	M	T	C	U
U	M	C	M	T	C	M	M	C	M
T	C	C	T	U	M	M	C	C	T
T	U	C	U	T	M	M	C	U	T

32. {Car Buyers Narrative} Construct a frequency bar chart of this data. Which car dealer came in last place in terms of overall service?

ANS:



Uncanny Chevrolet (U) received the fewest votes for best overall service (7 out of 40, or 17.5%) and came in last place.

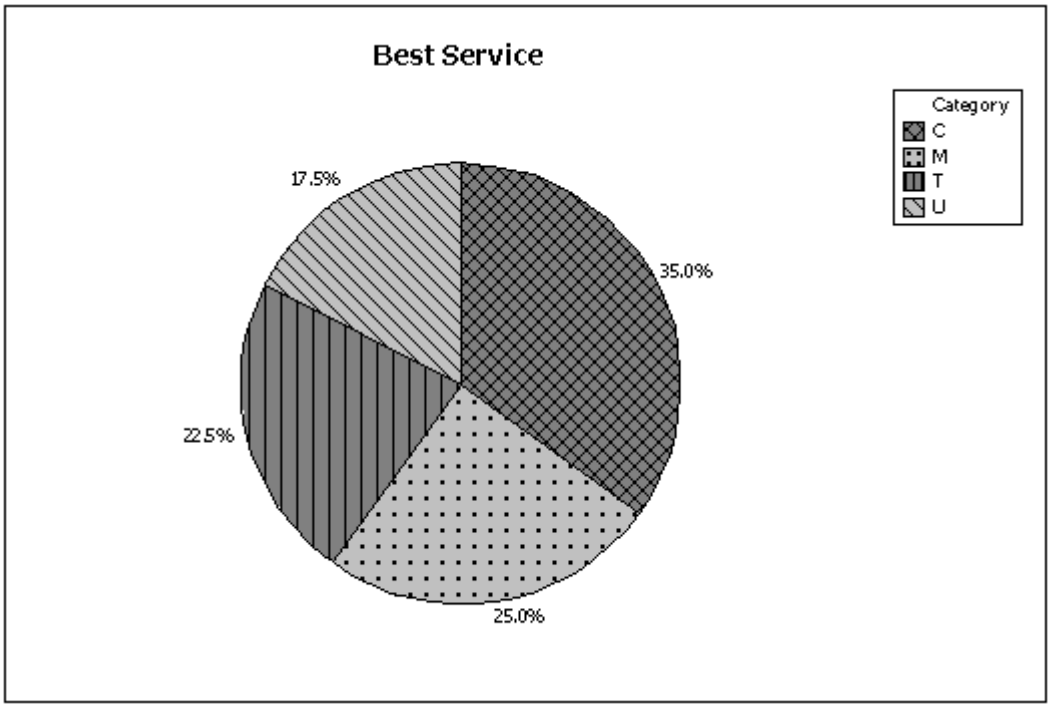
PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

33. {Car Buyers Narrative} Construct a pie chart of this data. Which car dealer offered the best overall service?

ANS:

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ContourMotors (C) received the most votes (35.0%).

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KEY: Bloom's: Application

Business School Graduates

A sample of business school graduates were asked what their major was. The results are shown in the following frequency distribution.

Major of Graduates	Number of graduates
Accounting	58
Finance	42
Management	38
Marketing	52
Other	10

34. {Business School Graduates Narrative} How many graduates were surveyed?

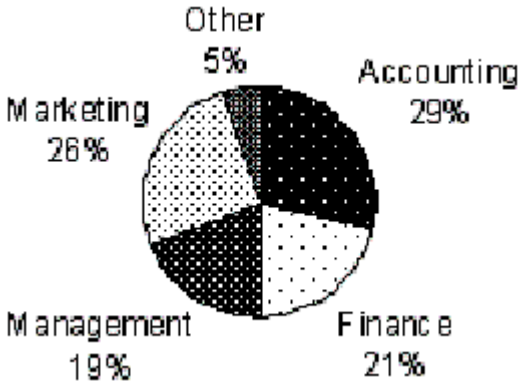
ANS:
200; you get this by totaling the counts for each major.

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

35. {Business School Graduates Narrative} Draw a pie chart to summarize this data. Which major was the most popular?

ANS:

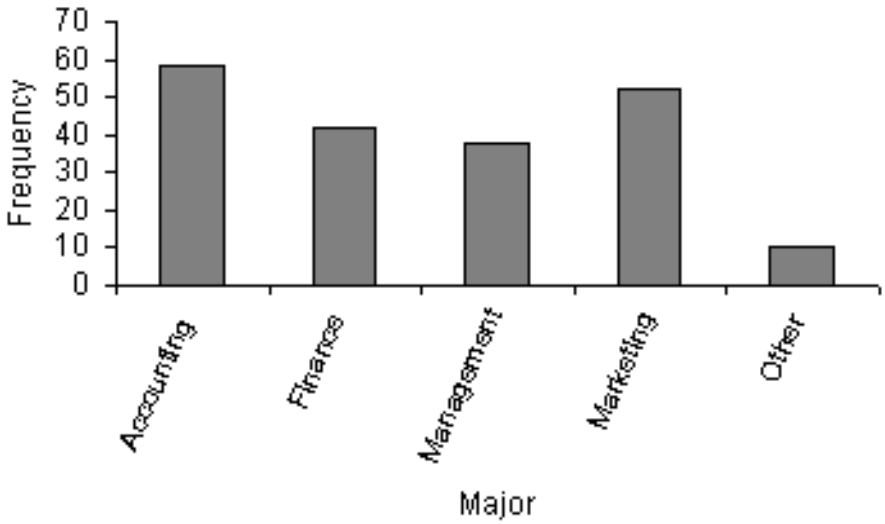
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The most popular major was accounting (29%), followed by marketing (26%).

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NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

36. {Business School Graduates Narrative} If you were only given the frequency bar chart below, would you able to reconstruct the original observations in the data set?



ANS:
No; you cannot reconstruct the original data from this graph because the scale on the frequency (*Y*) axis is not precise enough. For example, you can't tell exactly what number of students majored in finance; it appears to be 40 on this bar chart, but the actual value is 42, as seen on the original table.

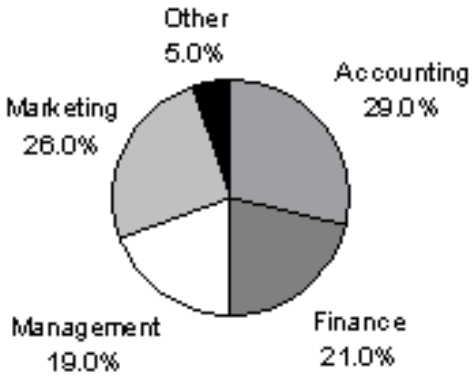
PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

37. {Business School Graduates Narrative} Draw a pie chart of this data. Are you able to reconstruct the original data from this pie chart alone?

ANS:

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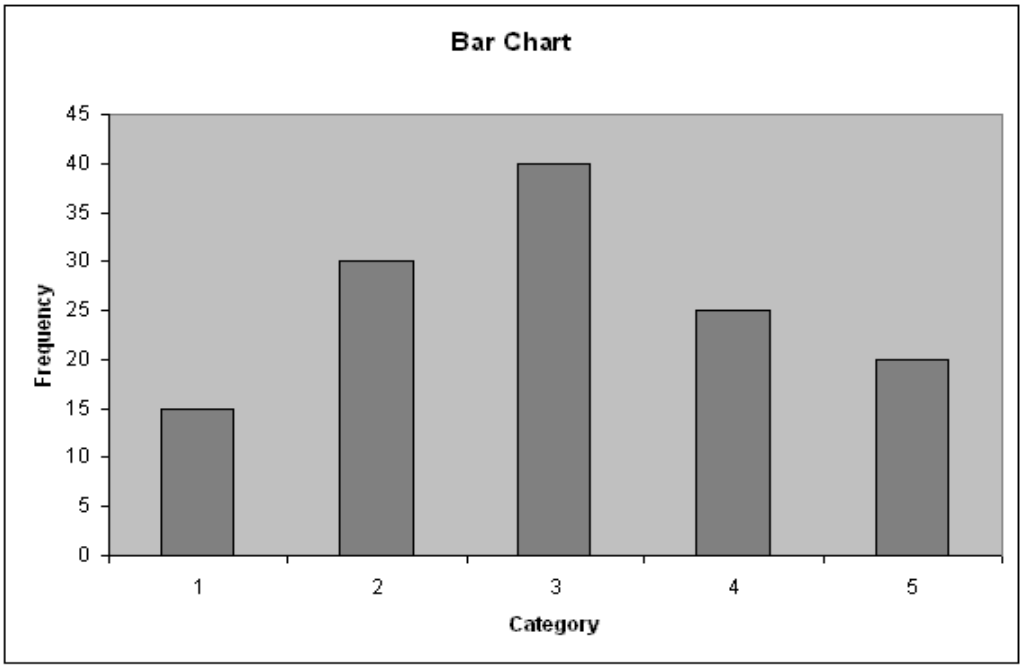
No; you cannot reconstruct the original data from this pie chart alone, because you don't know how many observations are in each category.

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.02
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

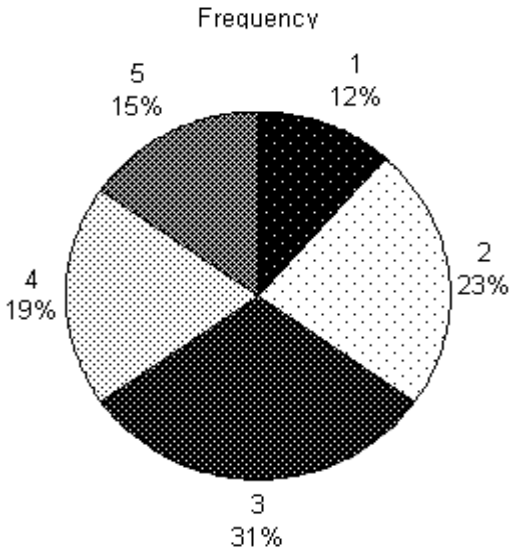
38. Suppose you measure the number of minutes it takes an employee to complete a task, where the maximum allowed time is 5 minutes, and each time is rounded to the nearest minute. Data from 130 employees is summarized below. Construct a frequency bar chart and a pie chart from this data. How long did it take most employees to complete the task?

Time (minutes)	1	2	3	4	5
Frequency	15	30	40	25	20

ANS:



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The most common time to complete the task was 3 minutes, which was recorded for 40 of the 130 (31%) of the employees.

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KEY: Bloom's: Application

39. A cross-classification table summarizes data from two nominal variables.

ANS:
T

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

40. To describe the relationship between two nominal variables you make a scatter diagram and look for a correlation.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

41. If two nominal variables are unrelated, then the patterns exhibited in their corresponding bar charts should be approximately the same. If some relationship exists, then some bar charts will differ from others.

ANS:
T

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

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42. A cross-classification table is the same thing as two frequency distribution tables, one for each variable.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

43. If the relative frequencies in the rows of a cross-classification table are similar, then the two variables shown in the table are not related.

ANS:
T

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

44. If two nominal variables are unrelated, then the patterns exhibited in their corresponding pie charts should be approximately the same. If some relationship exists, then some pie charts will differ from others.

ANS:
T

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

45. The percentage of observations in each combination of the cross-classification table must be equal in order to show two nominal variables are not related.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

46. In the following cross-classification table, gender and car ownership are related.

	Own a car	Don't own a car
Females	60	30
Males	80	40

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02

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KEY: Bloom's: Application

47. In the following cross-classification table, gender and fantasy baseball participation are related.

	Participate in Fantasy Football	Don't participate in Fantasy Football
Males	75	25
Females	45	55

ANS:
T

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

48. A college professor classifies his students according to their grade point average (GPA) and their gender. The resulting cross-classification table is shown below.

	GPA		
Gender	Under 2.0	2.0 – 3.0	Over 3.0
Male	10	30	15
Female	15	25	35

If you made a pie chart for male GPAs and a pie chart for female GPAs, those pie charts would look the same.

ANS:
F

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

49. When studying the responses to two nominal questions, we should develop a
a. cross-classification table.
b. frequency distribution table.
c. cumulative percentage distribution table.
d. scatter diagram.

ANS:
A

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

50. Which of the following techniques can be used to explore relationships between two nominal variables?
a. Comparing the relative frequencies within a cross-classification table.
b. Comparing pie charts, one for each column (or row).
c. Comparing bar charts, one for each column (or row).
d. All of these choices are true.

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ANS:
D

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

51. A statistics professor classifies his students according to their grade point average (GPA) and their gender. The resulting cross-classification table is shown below.

	GPA		
Gender	Under 2.5	2.5 – 3.5	Over 3.5
Male	5	25	10
Female	10	20	30

Which of the following describes the relationship between GPA and gender shown by this table?
a. A higher percentage of females have GPAs over 3.5, compared to males.
b. A lower percentage of females have GPAs over 3.5, compared to males.
c. Females and males each have the same percentage of GPAs over 3.5.
d. You cannot compare male and female GPAs because the total number in each group is not the same.

ANS:
A

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

52. In the following cross-classification table, how are gender and house ownership related?

	Own a house	Don't own a house
Females	60	30
Males	80	40

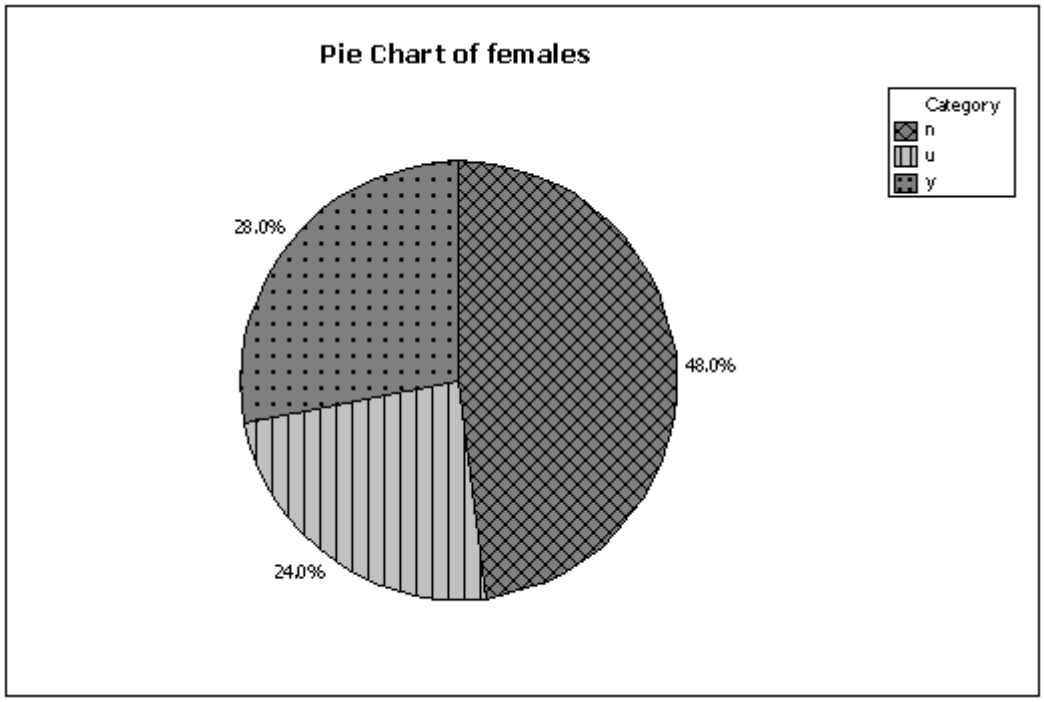
a. The percentage of house owners is higher for males than for females.
b. The percentage of house owners is higher for females than for males.
c. The percentage of house owners is the same for females and males.
d. You cannot compare percentages for males and females since the total frequencies are not equal.

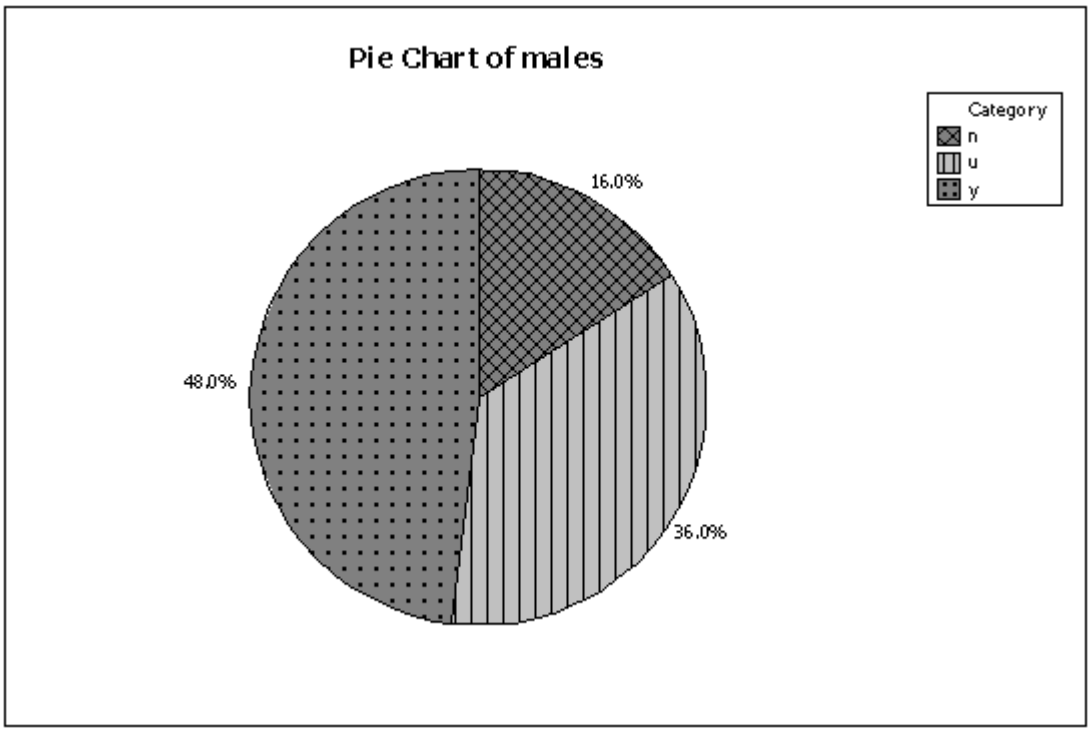
ANS:
C

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

53. Two hundred males and two hundred females were asked whether or not college baseball should have a playoff system (yes/no/undecided). Pie charts of the responses for males vs. females are shown below. Which of the following describes the relationship between gender and opinion?

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a. A higher percentage of males want a playoff system compared to females.
b. More males than females are undecided on this issue.
c. Gender and opinion on a playoff system are related.
d. All of these choices are true.

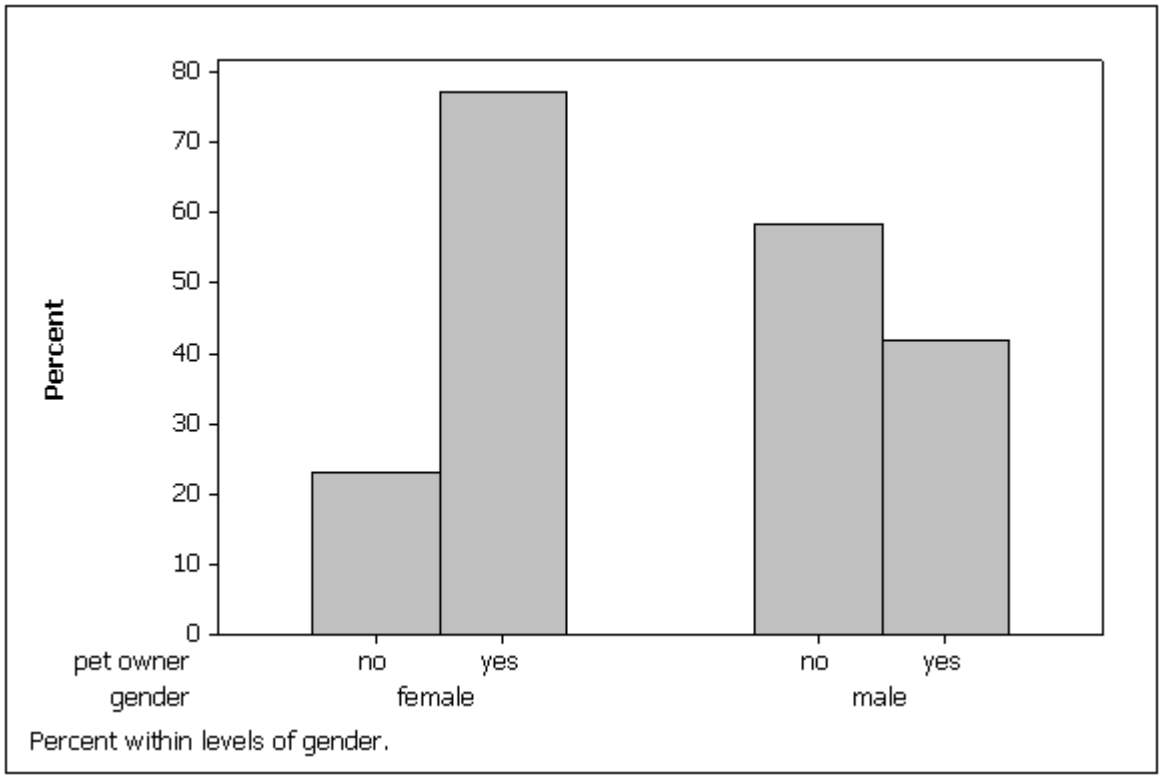
ANS:
D

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03

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KEY: Bloom's: Comprehension

54. A survey of 100 adults was conducted to see if gender is related to pet ownership. The results are summarized in the bar chart below. Which of the following statements describes the relationship?



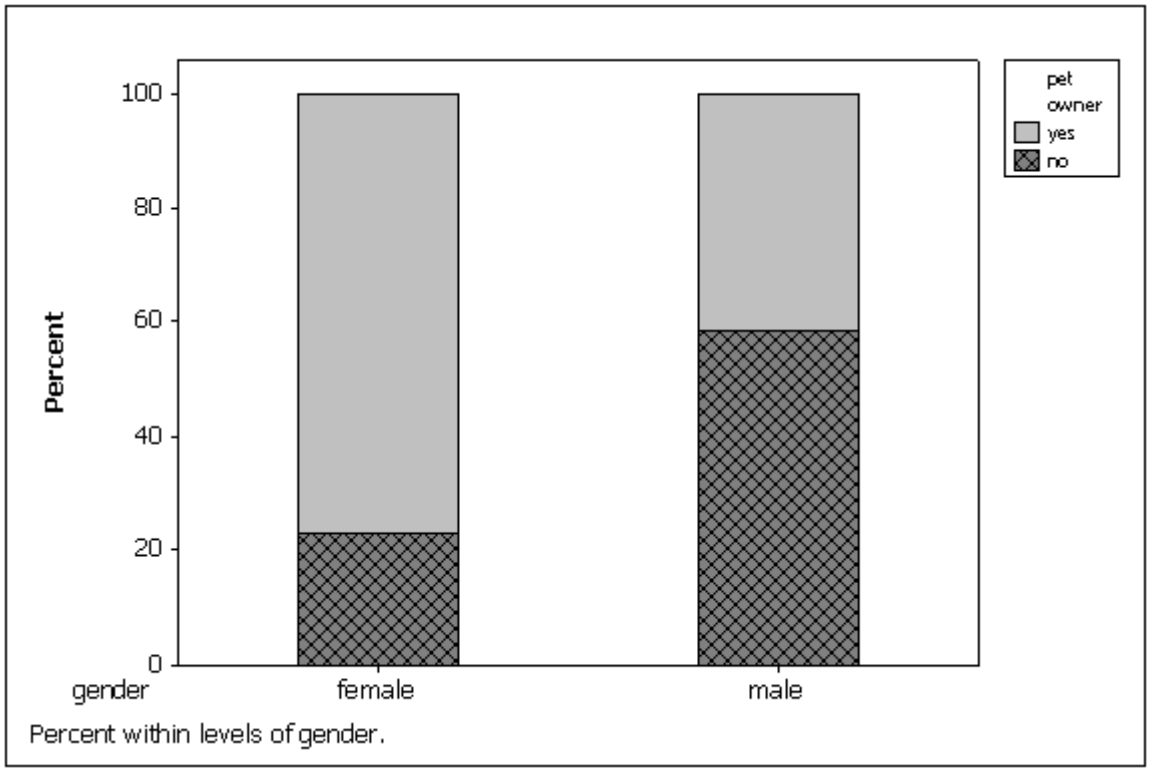
a. Pet ownership and gender are not related.
b. More males own pets than don't own pets.
c. Fewer females own pets than don't own pets.
d. None of these choices.

ANS:
D

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
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55. The bar charts below summarize data collected on 100 adults regarding gender and pet ownership. Which of the following statements is (are) true based on this chart?

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a. Gender and pet ownership are related; a higher percentage of males own pets than females.
b. Gender and pet ownership are related; a higher percentage of females own pets than males.
c. Gender and pet ownership are related; males and females own the same percentage of pets.
d. Gender and pet ownership are not related.

ANS:
B

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

56. To evaluate two nominal variables at the same time, a(n) _____ table should be created from the data.

ANS:
cross-classification
cross-tabulation
contingency

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

57. Data that contains information on two variables is called _____ data.

ANS:
bivariate

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03

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NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

58. A cross-classification table is used to describe the relationship between two _____ variables.

ANS:
nominal
categorical
qualitative

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

59. Data that contains information on a single variable is called _____ data.

ANS:
univariate

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

60. You can graph the relationship between two nominal variables using two _____ or two _____.

ANS:
bar charts, pie charts
pie charts, bar charts

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Knowledge

61. If two pie charts made from the rows of a cross-classification table look the same, then the two nominal variables _____ (are/are not) related.

ANS:
are not

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

62. If two bar charts made from the rows of a cross-classification table look the same, then the two nominal variables _____ (are/are not) related.

ANS:
are not

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

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All-Nighters

A sample of 400 students at a certain university was taken after the midterm; 200 students reported staying up all night before the midterm and the other 200 students did not. Researchers recorded whether each student did well or poorly on the midterm. The following table contains the results.

	Did Well on Midterm	Did Poorly on Midterm
Stayed up all night	60	140
Did not stay up all night	120	80

63. {All-Nighter Narrative} Of those who stayed up all night before the midterm, what percentage did well on the midterm?

ANS:
60/200 = 30%

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

64. {All-Nighters Narrative} Of those who did well on the midterm, what percentage stayed up all night before the midterm?

ANS:
60/180 = 33.3%

PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

65. {All-Nighters Narrative} Briefly explain (using percentages) whether staying up all night before this midterm is related to a student doing poorly.

ANS:
Yes, they are related. Of those staying up all night, 140/200 = 70% did poorly. Of those who didn't stay up all night, 80/200 = 40% did poorly. Staying up all night before this midterm is associated with lower performance.

PTS: 1 DIF: Moderate OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

66. {All-Nighters Narrative} There is a relationship between whether or not a student stayed up all night before the midterm, and how well they did on the midterm. Describe this relationship using percentages.

ANS:
Of those who stayed up all night, 60/200 = 30% did well and 70% did not. Of those who didn't stay up all night, 120/200 = 60% did well and 40% did not.

PTS: 1 DIF: Challenging OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02

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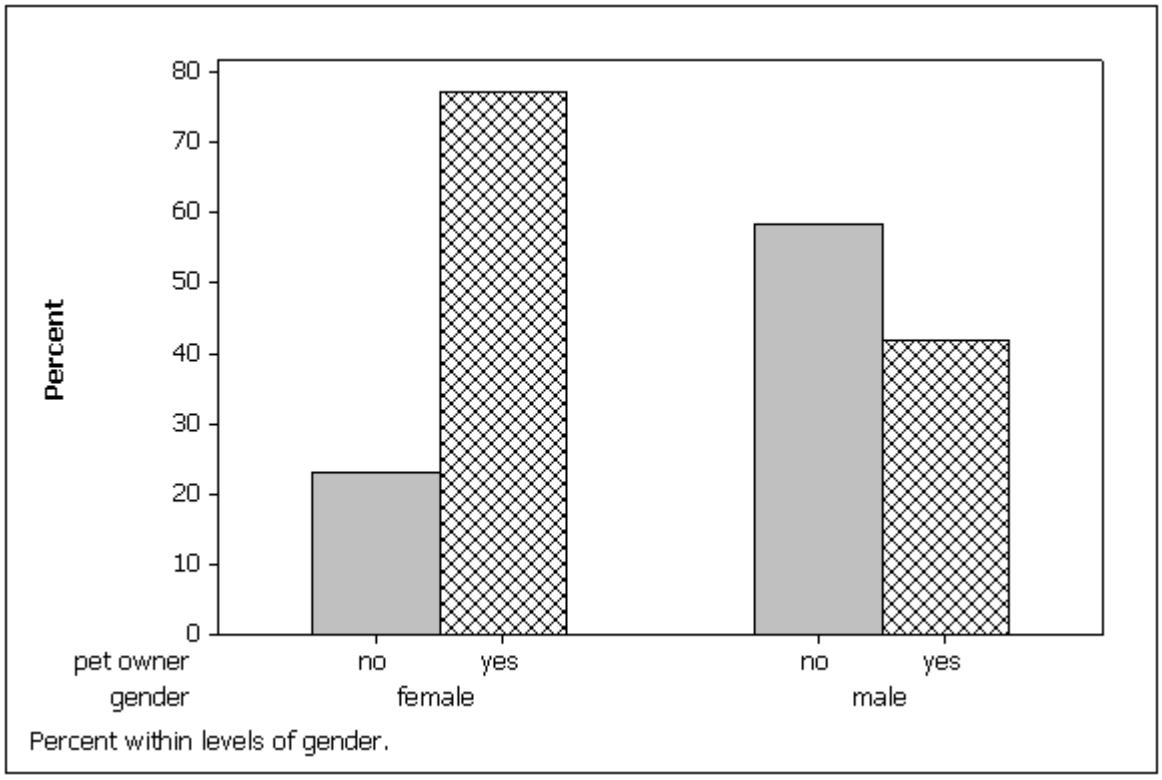
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KEY: Bloom's: Application

67. Using the following cross-classification table, draw two bar charts that compare pet ownership for males vs. females. Are gender and pet ownership related?

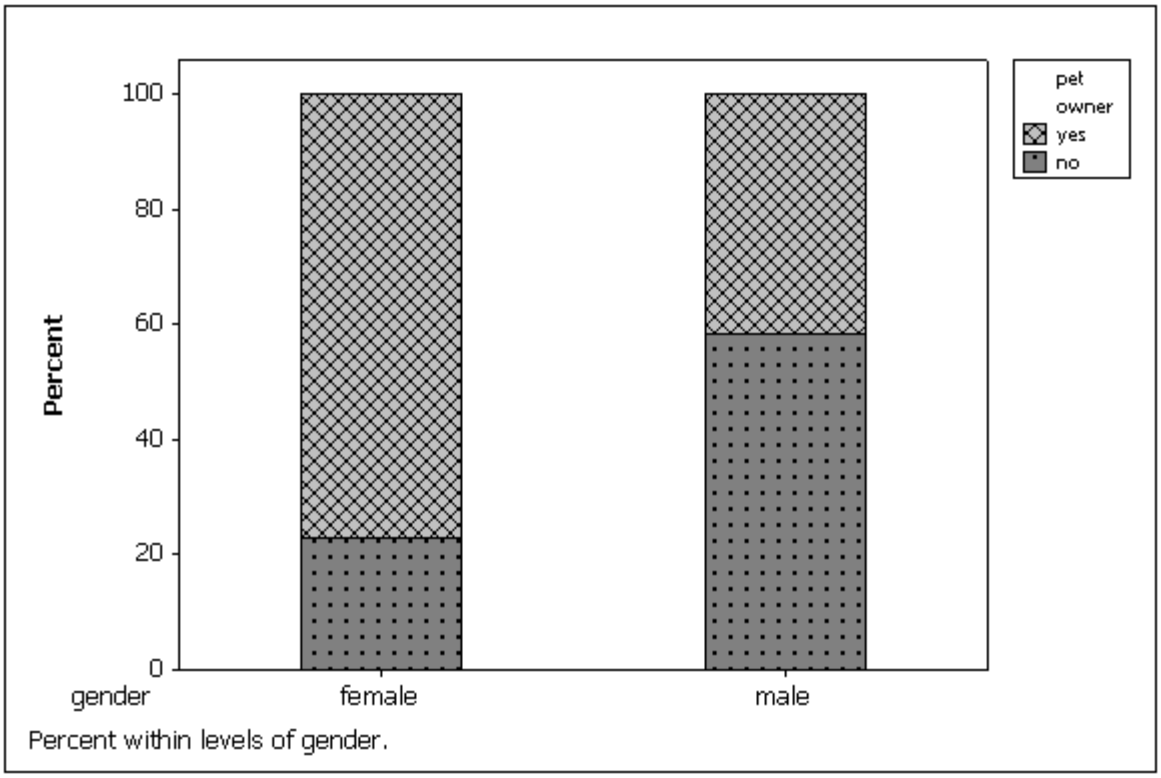
	Own a pet	Don't own a pet
Females	75	25
Males	40	60

ANS:
The first "side-by-side" bar chart below shows gender and pet ownership are related. More females own pets than males (75% vs. 40%.) Note the bar charts could be stacked also, and show the same results; see the second "stacked" bar chart below.



OR

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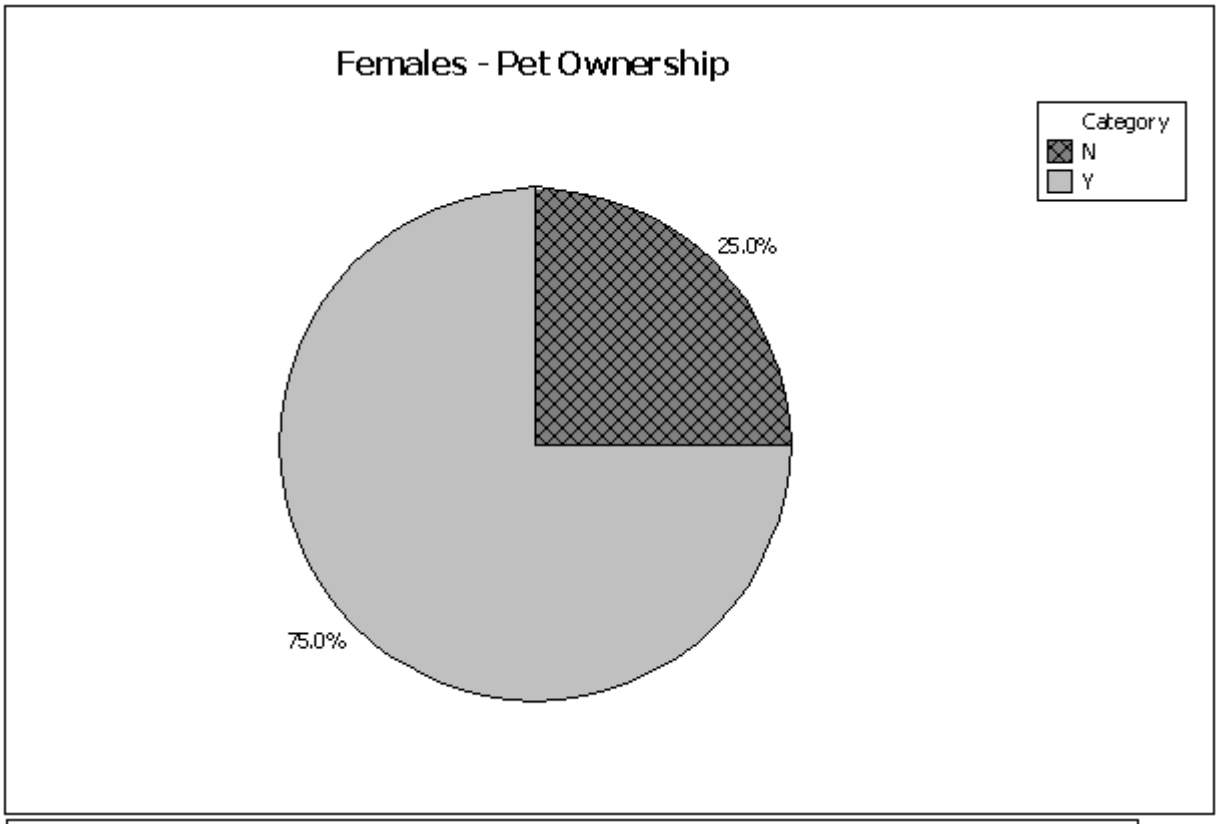
PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Comprehension

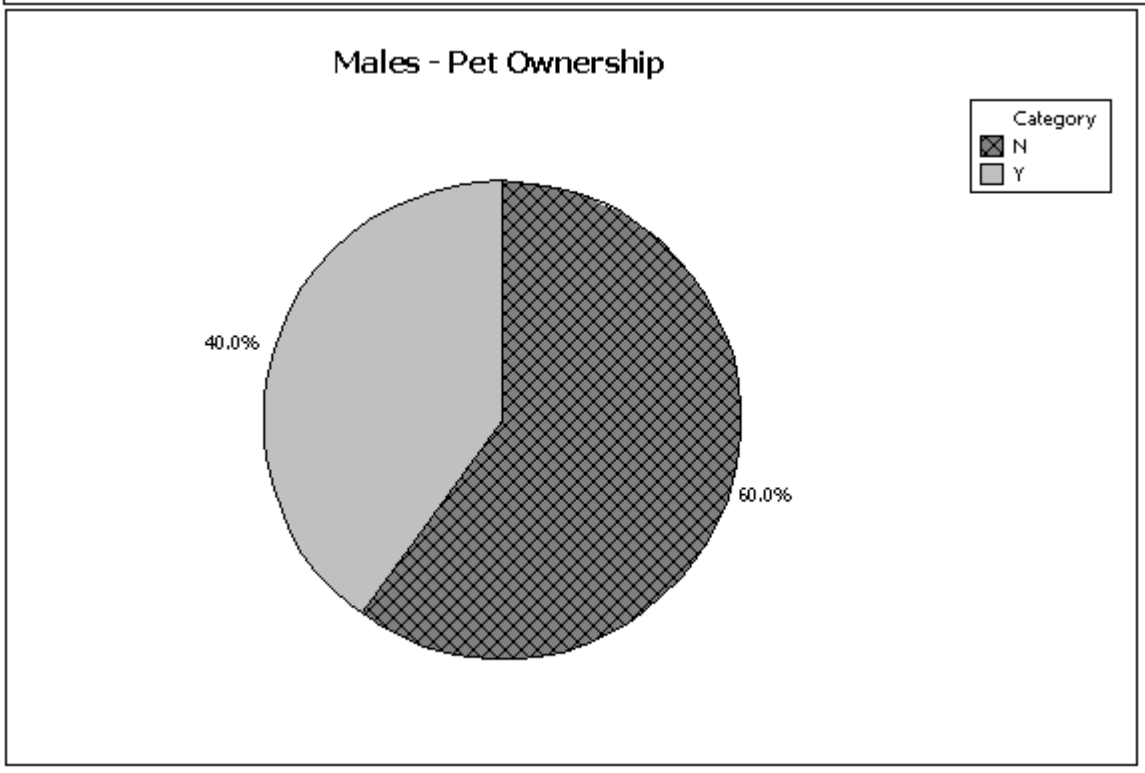
68. Using the following cross-classification table, draw two pie charts that compare pet ownership for males vs. females. Are gender and pet ownership related?

	Own a pet	Don't own a pet
Females	75	25
Males	40	60

ANS:
The pie charts below show gender and pet ownership are related. More females own pets than males (75% vs. 40%).

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PTS: 1 DIF: Easy OBJ: SFME.KELL.15.02.03
NAT: BUSPROG.SFME.KELL.15.03 STA: DISC.SFME.KELL.15.02
KEY: Bloom's: Application

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