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Name:_____ Class:_____ Date:_____

Chapter 2

1. A data set consisting of observations on only a single characteristic, or attribute, is a _____ data set.
   a. bivariate
   b. multivariate
   c. random
   d. univariate

ANSWER: d

2. A data set consisting of two observations on each individual subject is a _____ data set.
   a. bivariate
   b. multivariate
   c. random
   d. univariate

ANSWER: a

3. Concerning univariate data, a _____ or _____ data set consists of non-numerical observations that may be placed in categories.
   a. categorical; qualitative
   b. categorical; quantitative
   c. numerical; quantitative
   d. numerical; qualitative

ANSWER: a

4. Concerning univariate data, a _____ or _____ data set consists of observations that are numbers.
   a. categorical; qualitative
   b. categorical; quantitative
   c. numerical; quantitative
   d. numerical; qualitative

ANSWER: c

5. If there are more than two observations on the same person, the data set is:
   a. bivariate.
   b. multivariate.
   c. random.
   d. univariate.

ANSWER: b

6. A survey records a person's smoking status as either "yes" or "no." This survey is recording what kind of data?
   a. Categorical/qualitative
   b. Categorical/quantitative

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Chapter 2

c. Numerical/quantitative
d. Numerical/qualitative

ANSWER: a

7. In a study of the effectiveness of a drug that is designed to reduce blood pressure, each participant has his or her blood pressure recorded in millimeters of mercury before and after taking the drug. Of what type are the data in this study?

a. Categorical/qualitative
b. Categorical/quantitative
c. Numerical/quantitative
d. Numerical/qualitative

ANSWER: c

8. A numerical data set is _____ if the set of all possible values is finite, or countably infinite.

a. quantitative
b. discrete
c. qualitative
d. categorical

ANSWER: b

9. A numeric data set is _____ if the set of all possible values is any number within an interval of numbers.

a. continuous
b. discrete
c. qualitative
d. categorical

ANSWER: a

10. Bic Corporation performs routine quality control testing on its lighters. Each lighter tested is struck, and the trial is recorded as either a success (the lighter ignites) or a failure (the lighter does not ignite). This is an example of collecting _____ data.

a. continuous
b. discrete
c. qualitative
d. quantitative

ANSWER: c

11. To assure prompt service, the city metro routinely records wait times at its various bus stops. The length of time a customer must wait for a bus is recorded to the nearest second. What type of data are these?

a. Qualitative
b. Discrete
c. Continuous

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d. Multivariate

ANSWER: b

12. Concerning qualitative data, the _____ of a particular class is the count for that class.

a. relative frequency
b. distribution
c. frequency
d. probability

ANSWER: c

13. Concerning qualitative data, the _____ of a particular class is the frequency of the class divided by the total number of observations.

a. relative frequency
b. numeric center
c. frequency
d. None of the above.

ANSWER: a

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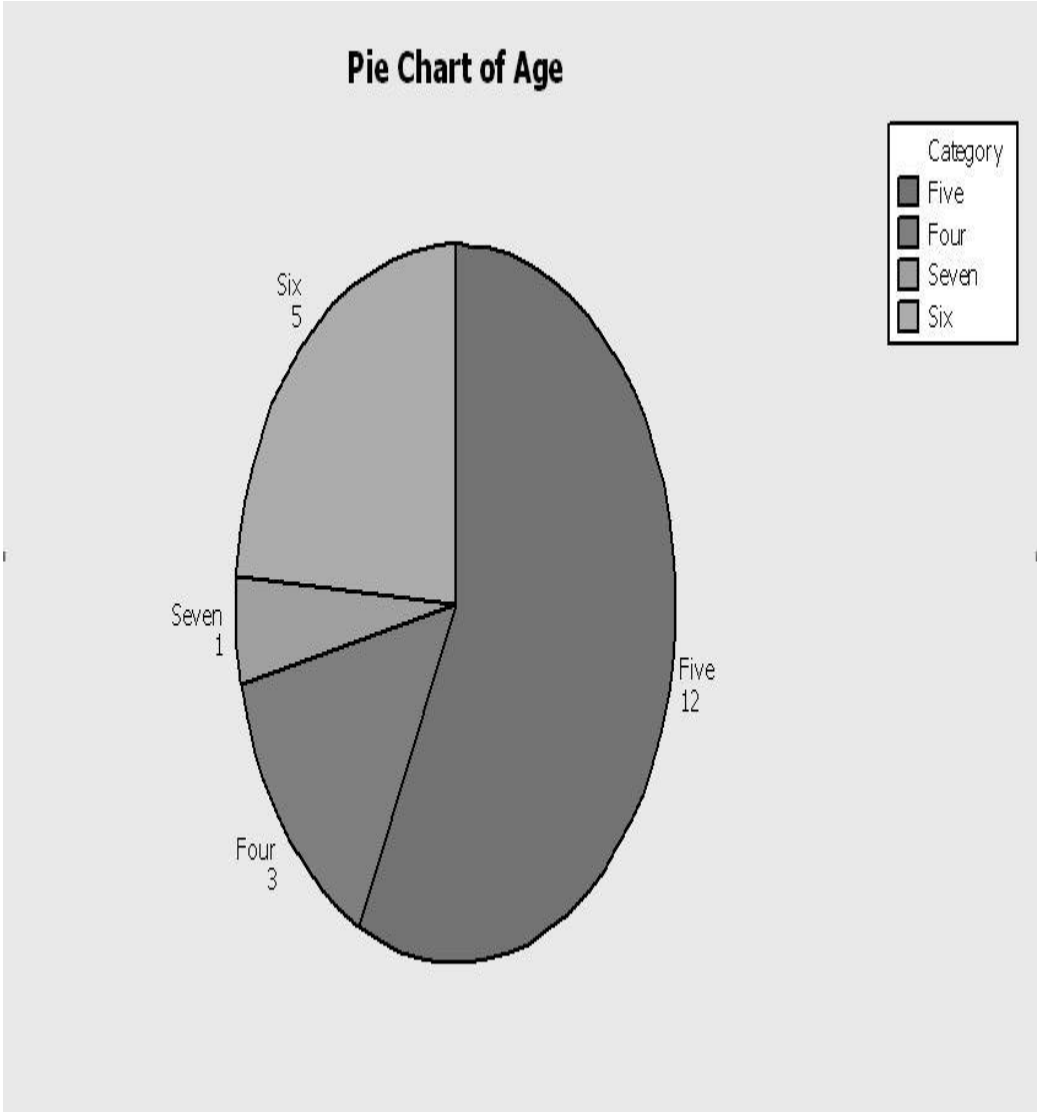
Chapter 2

14. 

This pie chart summarizes the ages of a kindergarten class (4-, 5-, 6-, and 7-year-olds). What is the relative frequency of 4-year-olds in this class?

a. 3
b. 4
c. 0.143
d. 0.190

ANSWER: c

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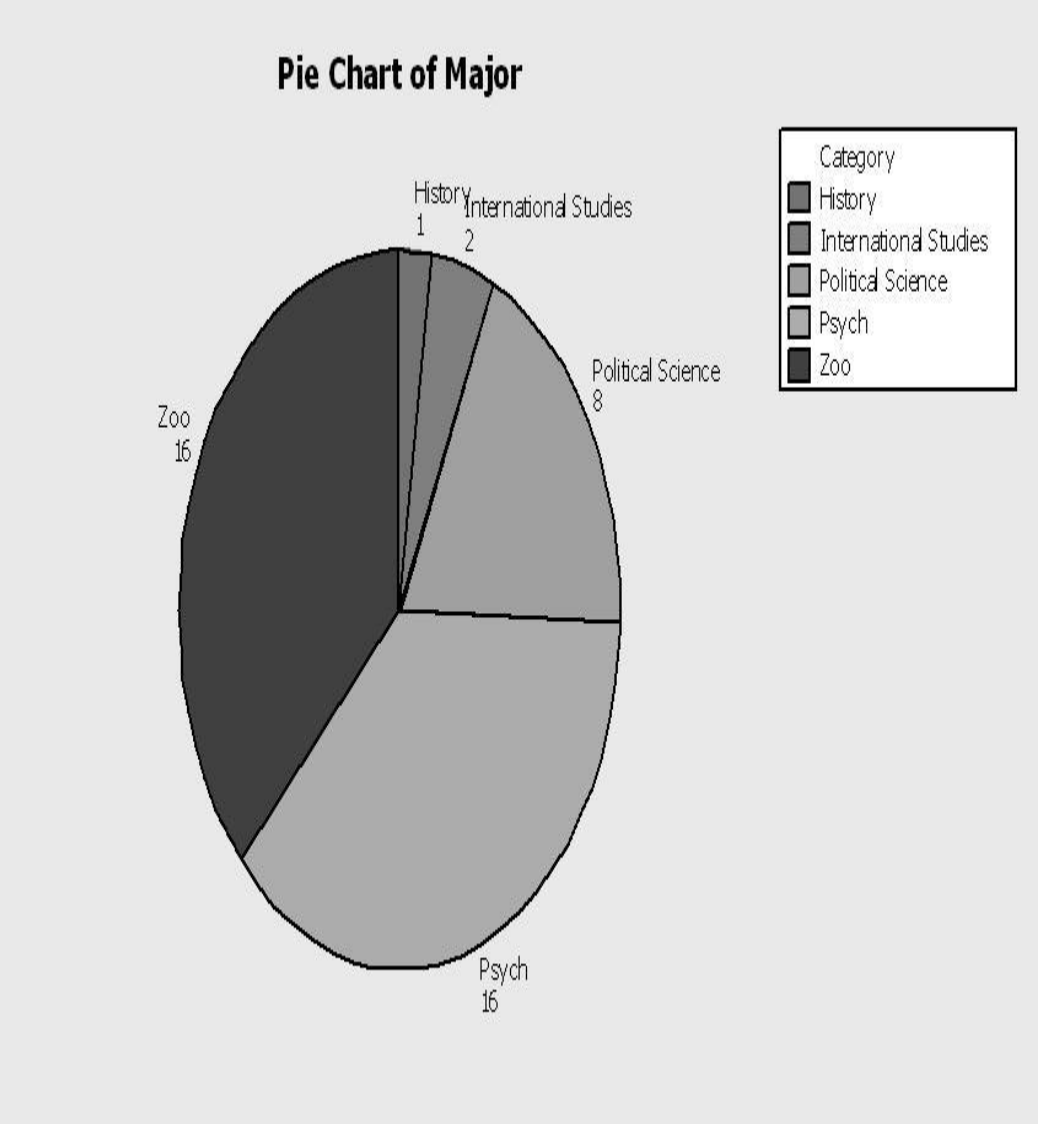
Chapter 2

15.



This a pie chart shows major areas of study for a group of students in a 300 level statistics class. What is the frequency of psychology majors in this class?

a. 3.72
b. 16
c. 0.372
d. 8

ANSWER: b

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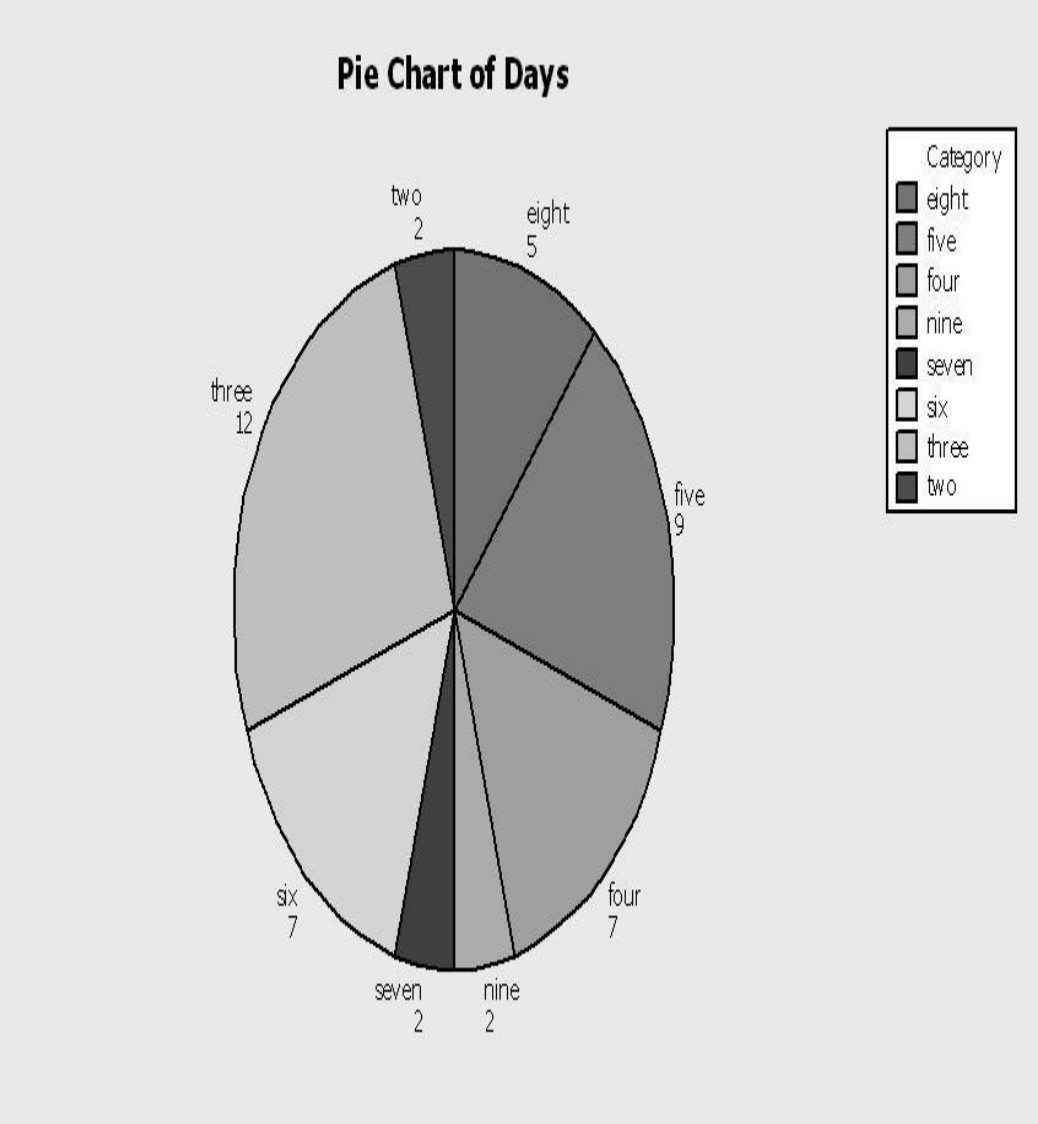
16.



International passengers on a commercial plane flying into Costa Rica are asked how many days they intend to spend in the country. The pie chart summarizes their responses. What is the relative frequency of international passengers on this plane who intend to spend more than seven days in the country?

a. 0.043

b. 0.152

c. 0.196

d. 9

ANSWER: b

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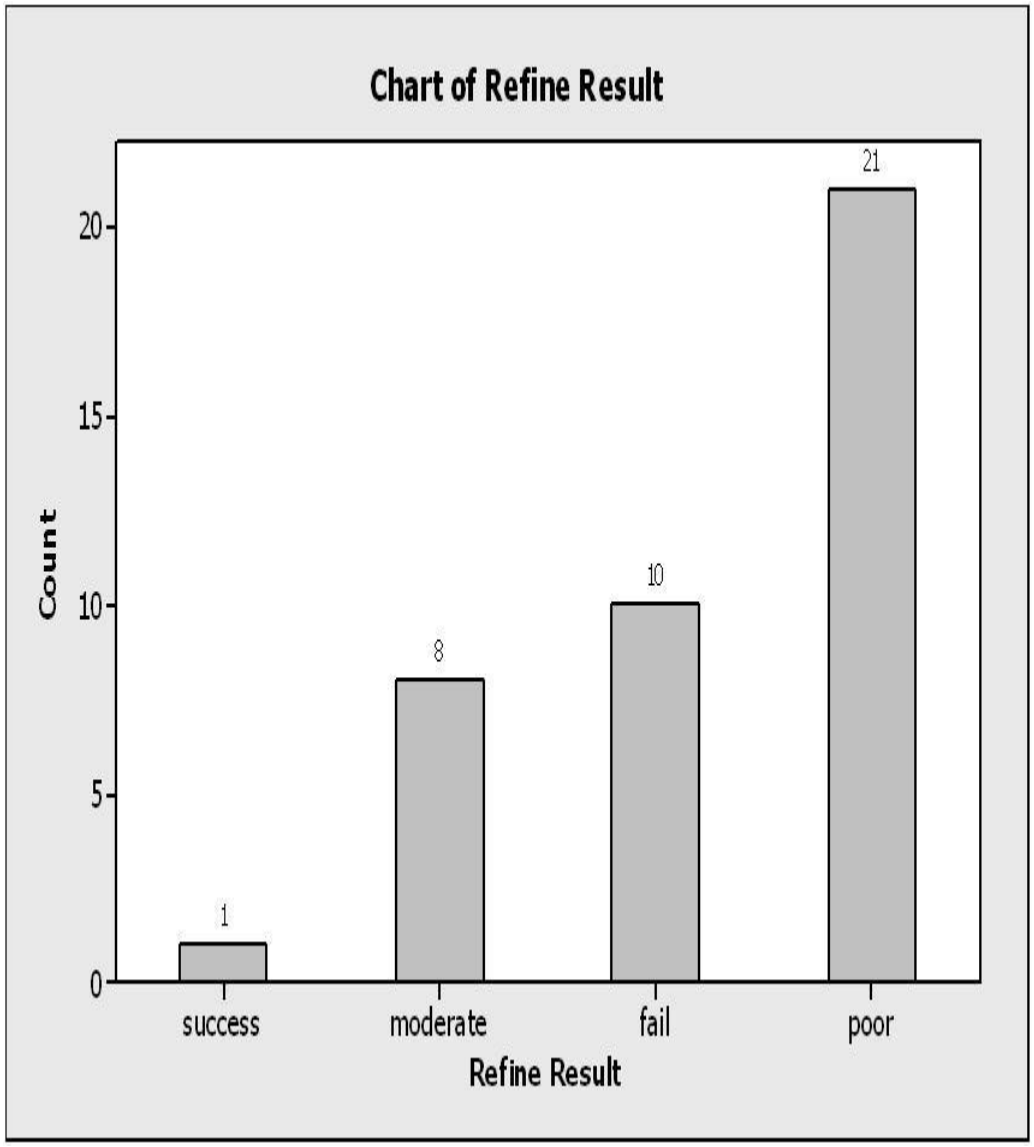
17.



This bar chart summarizes the results from a test of a new refining technique for silver. A "fail" or "poor" result is unacceptable, whereas a result of "moderate" or "success" is acceptable. According to the chart, what proportion of the results were unacceptable?

a. 0.025
b. 0.225
c. 0.775
d. 0.250

ANSWER: c

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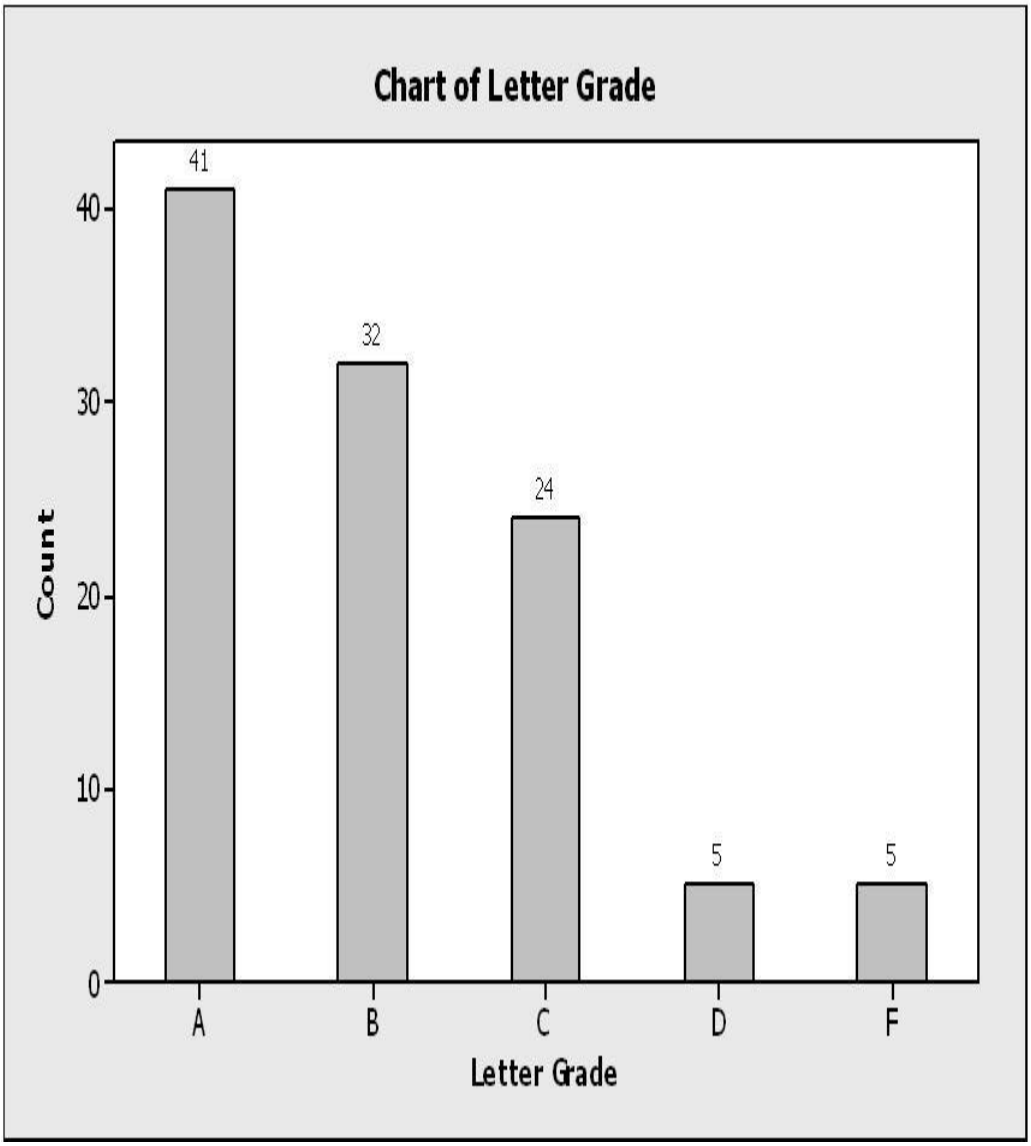
18.



This bar chart shows letter grades earned in a particular introductory statistics class. If we define "passing" as a student earning a C or higher in the class, what is the frequency of students who passed in this class?

a. 24
b. 73
c. 0.907
d. 97

ANSWER: d

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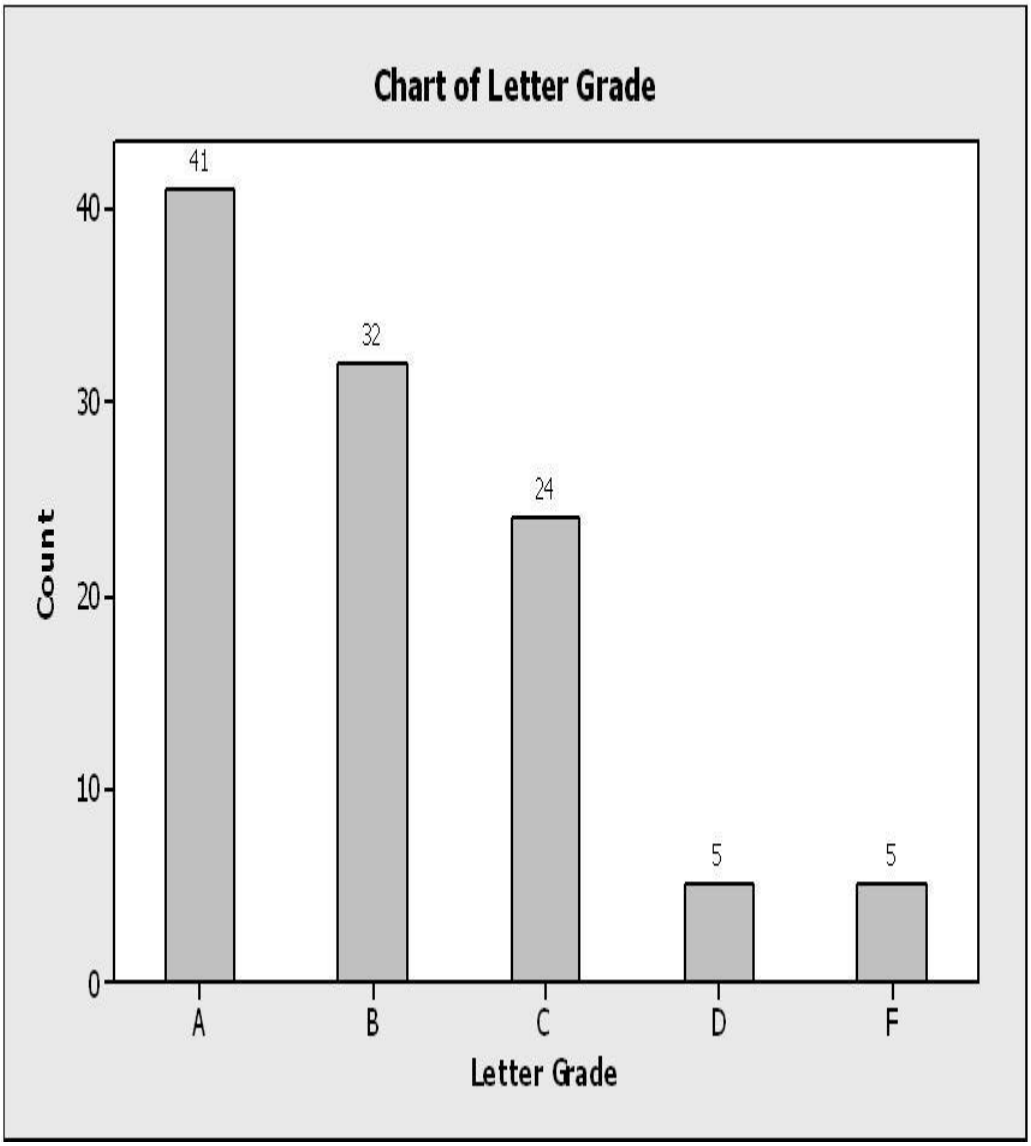
19.



This bar chart shows letter grades earned in a particular introductory statistics class. If we define "failing" as a student earning less than a C, what proportion of the students in this class failed?

a. 0.093
b. 0.224
c. 0.907
d. 0.318

ANSWER: a

20.

Class	Frequency	Relative Frequency
Strongly Disagree	10	0.172
Disagree		
Agree	22	0.379
Strongly Agree		0.190
Total	**58**	**1**

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This frequency distribution table summarizes responses to a customer survey. Some of the values are purposely missing. What must the frequency of "Strongly Agree" be?

a. 11
b. 0190
c. 0.259
d. 1

ANSWER: a

21.

Stem	Leaf	stem = 10
3	00012333359	leaf = 1
4	001223444679	
5		
6	112	
7	0	
8	11	
9	057	
10	0**0**67	
11	03	

What is the value of the data point represented by the bold and underlined "**0**" in the stem-and-leaf diagram? (Note: It is bold and underlined for emphasis only.)

a. 1
b. 10
c. 100
d. 1000

ANSWER: c

22.

Stem	Leaf	stem = tens and hundreds
3	00012333359	leaf = ones
4	001223444679	
5	0112667	
6	112	
7	2	
8	0	
9	119	
10	0223444	
11	006788888999	
12	03336667799	

Judging from this stem-and-leaf display, the data set appears to be:

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a. skewed.
b. uniform.
c. symmetric.
d. centered at 100.

ANSWER: c

23.

Stem	Leaf	stem = 10
3	00**0**12333359	leaf = 1
4	001223444679	
5		
6	112	
7	0	
8	11	
9	057	

What is the data value represented by the bold and underlined "**0**" in the stem-and-leaf diagram? (Note: It is bold and underlined for emphasis only.)

a. 3
b. 30
c. 300
d. 3000

ANSWER: b

24.

Stem	Leaf	stem = 10
3	00012333359	leaf = 1
4	0**0**1223444679	
5		
6	112	
7	0	
8	11	
9	057	

What is the data value that leads to the bold and underlined "**0**" in the stem-and-leaf diagram? (Note: It is bold and underlined for emphasis only.)

a. 4
b. 40
c. 400
d. 4001

ANSWER: b

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25.

Stem	Leaf	stem = 10
3	000**1**2333359	leaf = 1
4	001223444679	
5		
6	112	
7	0	
8	11	
9	057	

What data value is represented by the bold and underlined "**1**" in the stem-and-leaf diagram? (Note: It is bold and underlined for emphasis only.)

a. 31
b. 30001
c. 3001
d. 1

ANSWER: a

26.

Stem	Leaf	stem = hundreds and tens
33	00012333359	leaf = ones
34	001223444679	
35		
36	112	
37	0	
38	11	
39	057	
40	0**0**15667	

What data value is represented by the bold and underlined "**0**" in the stem-and-leaf diagram? (Note: It is bold and underlined for emphasis only.)

a. 4000
b. 400
c. 40
d. 4

ANSWER: b

27. A cardiologist is studying the effects of soothing music on a person's heart rate. He records his patients' at-rest heart rate in whole beats per minute before and after they listen to soothing music. The values of the variable "heart rate" in this study are **best** described as:

a. qualitative.
b. continuous.

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c. discrete.
d. categorical.

ANSWER: c

28. A frequency distribution table is **best** suited to summarizing _____ data.
a. continuous
b. bivariate
c. multivariate
d. qualitative

ANSWER: d

29. Relative frequency is **best** suited to describing _____ data.
a. continuous
b. quantitative
c. multivariate
d. qualitative

ANSWER: d

30. If all possible classes are represented, the sum of all relative frequencies must equal:
a. 0.5.
b. 1.0.
c. 2.0.
d. None of the above.

ANSWER: b

31.

Stem	Leaf	stem = 10
3	00012333359	leaf = 1
4	001223444679	
5		
6	112	
7	0	
8	11	
9	057	
10	0067	
11	03	

The shape of the data set summarized in the stem-and-leaf diagram is **best** described as:
a. symmetric.
b. bimodal.

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c. negatively skewed.
d. positively skewed.

ANSWER: d

32. The sum of all the relative frequencies of classes up to and including a particular class is defined as the:
a. relative frequency (RF).
b. boundary frequency (BF).
c. cumulative relative frequency (CRF).
d. frequency modulation (FM).

ANSWER: c

33.

Class	Frequency	Relative Frequency	Cumulative Relative Frequency
One			0.282
Two			0.776
Three			0.906
Four			0.956
Five			1
Total		**1**	

This frequency distribution table summarizes the number of siblings a group of randomly selected American adults has. Some of the values are purposely missing. What is the relative frequency of people with two siblings?

a. 0.494
b. 0.130
c. 0.776
d. Need more information to answer the question

ANSWER: a

34.

Class	Frequency	Relative Frequency	Cumulative Relative Frequency
A			0.383
B			0.682
C			0.906
D			0.953
F			1
Total	**107**	**1**	

This frequency distribution table summarizes the letter grades earned in a particular introductory statistics class. Some of the values are purposely missing. What is the frequency of A's?

a. 32
b. 5
c. 41
d. Need more information to answer the question

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ANSWER: c

35.

Class	Frequency	Relative Frequency	Cumulative Relative Frequency
Rare		0.177	0.177
Medium Rare		0.097	0.274
Medium		0.331	0.605
Medium Well		0.355	0.960
Well Done		0.040	1.000
Total		**1**	

This frequency distribution table summarizes the steak orders at a steakhouse last Saturday night. Some of the values are purposely missing. What was the frequency of "Well Done" orders?

a. 32
b. 24
c. 5
d. Need more information to answer the question

ANSWER: d

36. Two statistics students are arguing over which type of bar graph to use. One insists that a bar graph that displays the relative frequency will be better for displaying the overall shape of the data. The other holds that only a frequency bar graph will suffice. You happen along and hear their conversation. What advice do you give them?

a. The relative frequency bar graph is superior at displaying the overall shape of the data.
b. The frequency bar graph is superior at displaying the overall shape of the data.
c. A pie chart would be needed here to display the overall shape of the data.
d. Either bar graph would suffice, as they differ only in scale. The shape will be the same.

ANSWER: d

37. A distribution with only one peak is called:

a. single peaking.
b. multimodal.
c. bimodal.
d. unimodal.

ANSWER: d

38. When two distinct symmetric unimodal populations with different centers are mixed, the resulting distribution will likely be:

a. unimodal.
b. quasimodal.
c. bimodal.
d. skewed.

ANSWER: c

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39. Concerning numeric data, a negatively skewed distribution has:

a. most of the data concentrated in the lower values, with relatively fewer larger values.

b. most of the data concentrated in the higher values, with relatively fewer lower values.

c. a positive number of values skewed across the center.

d. an equal number of large and small values.

ANSWER: b

40. This table summarizes the responses to a nationwide telephone survey conducted by the Pew Foundation in October 2010. U.S. adults ages 18 and older were asked, "Some people say there is only one true love for each person. Do you agree or disagree?" Some of the table values are purposely missing. What was the frequency of the "Don't Know" responses?

Response	Frequency	Relative Frequency	Cumulative Relative Frequency
Agree	735	0.28	0.28
Disagree	1812	0.69	
Don't Know		0.03	1.00
Total	**2625**	**1**	

a. 78

b. 787

c. 813

d. Need more information to answer the question

ANSWER: a

41. This table summarizes the responses to a nationwide telephone survey conducted by the Pew Foundation in October 2010. U.S. adults ages 18 and older were asked, "Some people say there is only one true love for each person. Do you agree or disagree?" Some of the table values are purposely missing. What was the cumulative relative frequency of the "Disagree" responses?

Response	Frequency	Relative Frequency	Cumulative Relative Frequency
Agree	735	0.28	0.28
Disagree	1812	0.69	
Don't Know		0.03	1.00
Total	**2625**	**1**	

a. 0.69

b. 0.72

c. 0.97

d. Need more information to answer the question

ANSWER: c

42. A survey included 43 students who smoked and 319 who did not smoke. What is the relative frequency of the smokers in this survey?

a. 0.135

b. 0.119

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c. 0.88

d. 0.762

ANSWER: b

43.

Stem	Leaf	stem = 10
0	00022233455669999	leaf = 1
1	022233556788	
2	00122333457	
3	34589	
4	4	
5	069	
6	3	

This stem-and-leaf plot shows the lengths of reigns (in years) of the British monarchs. The shape of this plot is **best** described as:

a. symmetric.

b. bimodal.

c. negatively skewed.

d. positively skewed.

ANSWER: d

44.

Stem	Leaf	stem = 10
0	00022233455669999	leaf = 1
1	022233556788	
2	00122333457	
3	34589	
4	4	
5	069	
6	3	

This stem-and-leaf plot shows the lengths of reigns (in years) of the British monarchs. According to the plot, how many British rulers had reigns that lasted less than a full year?

a. 1

b. 3

c. 17

d. Need more information to answer the question

ANSWER: b

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45.

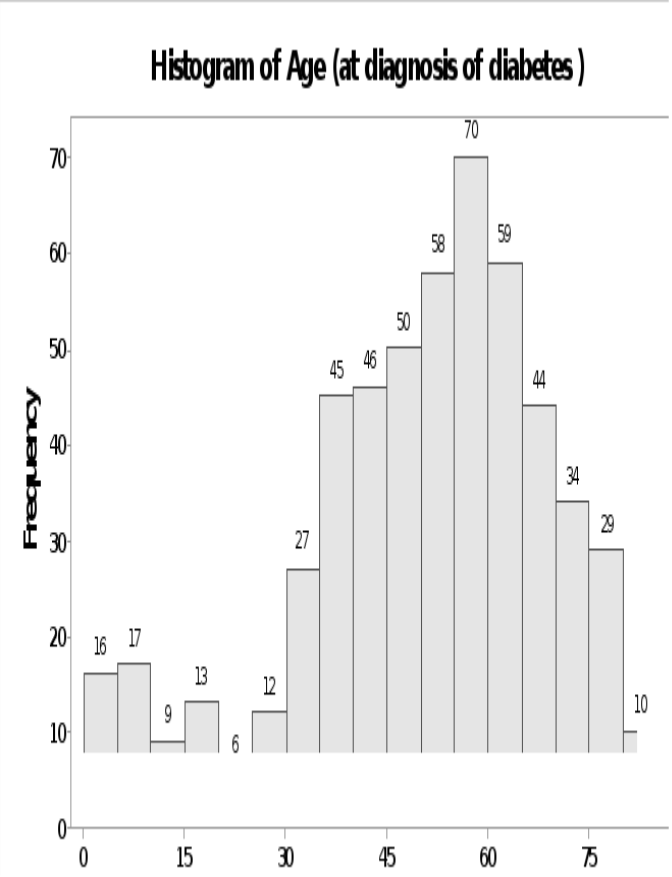
Stem	Leaf	stem = 10
0	00022233455669999	leaf = 1
1	022233556788	
2	00122333457	
3	34589	
4	4	
5	069	
6	3	

This stem-and-leaf plot shows the lengths of reigns (in years) of the British monarchs. According to the plot, how many British rulers had reigns that lasted 32 years?

a. 0
b. 1
c. 2
d. 3

ANSWER: a

46.



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This histogram shows the age at which 548 patients were first diagnosed with diabetes. The shape of this histogram is best described as:

a. symmetric.
b. bimodal.
c. monomodal.
d. positively skewed.

ANSWER: b

47. A survey records the number of U.S. states each person has visited. This is an example of what type of data?

a. Categorical
b. Continuous
c. Discrete
d. Qualitative

ANSWER: c

48. A survey records the average amount of time spent studying each week for students at a large university. What type of data are these?

a. Continuous
b. Discrete
c. Qualitative
d. Categorical

ANSWER: a

49. A survey of the patients waiting to be seen in an emergency room recorded the mode of arrival, the waiting time, the patient's insurance status (insured or not insured), and the patient's blood type. This would result in a _____ data set.

a. bivariate
b. multivariate
c. random
d. univariate

ANSWER: b

50. A student counted the number of candies of each color in a bag of 57 Reese's Pieces. The results are shown in the bar graph.

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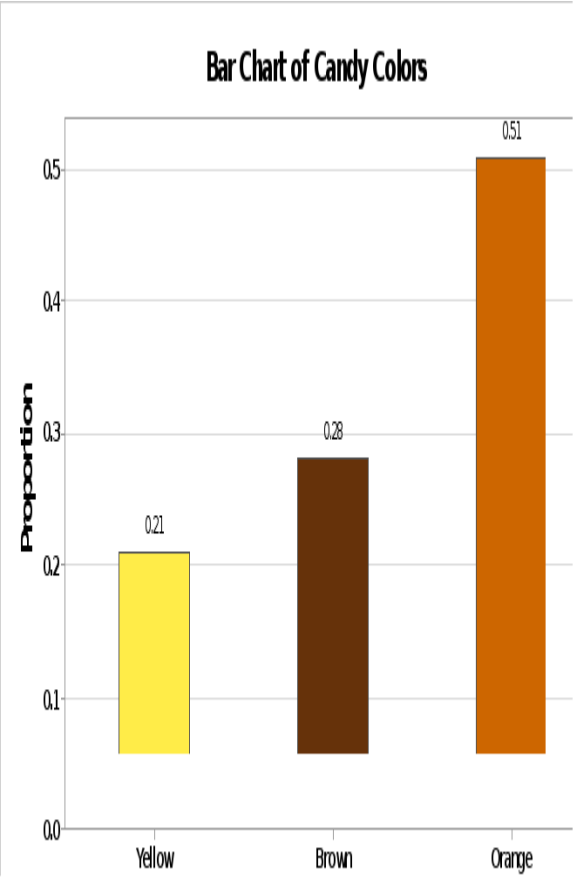

How many of the candies were colored orange?

a. 12

b. 51

c. 29

d. More information is needed.

ANSWER: c

51. A student counted the number of candies of each color in a bag of 57 Reese's Pieces. The results are shown in the bar graph.

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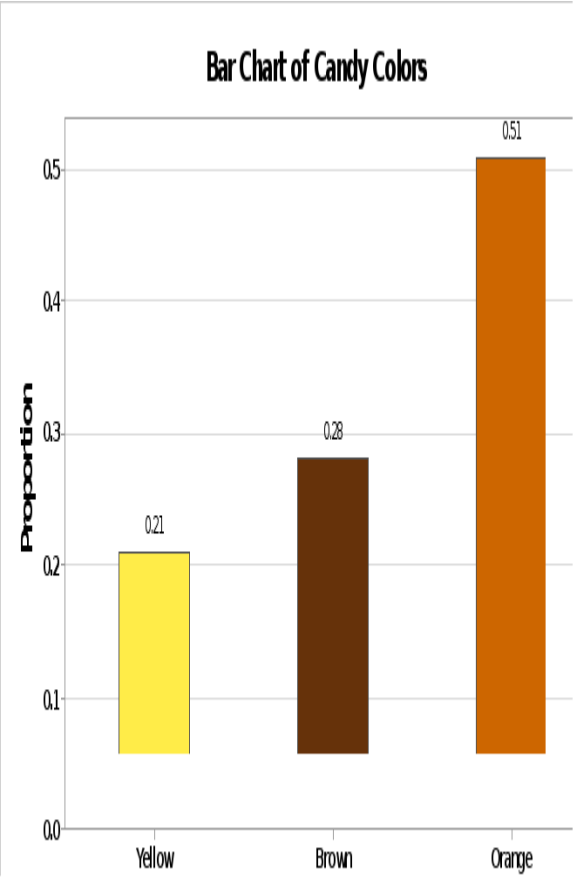

What percentage of the candies were **not** colored orange?

a. 21%
b. 28%
c. 49%
d. 51%

ANSWER: c

52. A 2012 survey examined cell phone ownership by U.S. adults. The results of the survey are shown in the pie chart.

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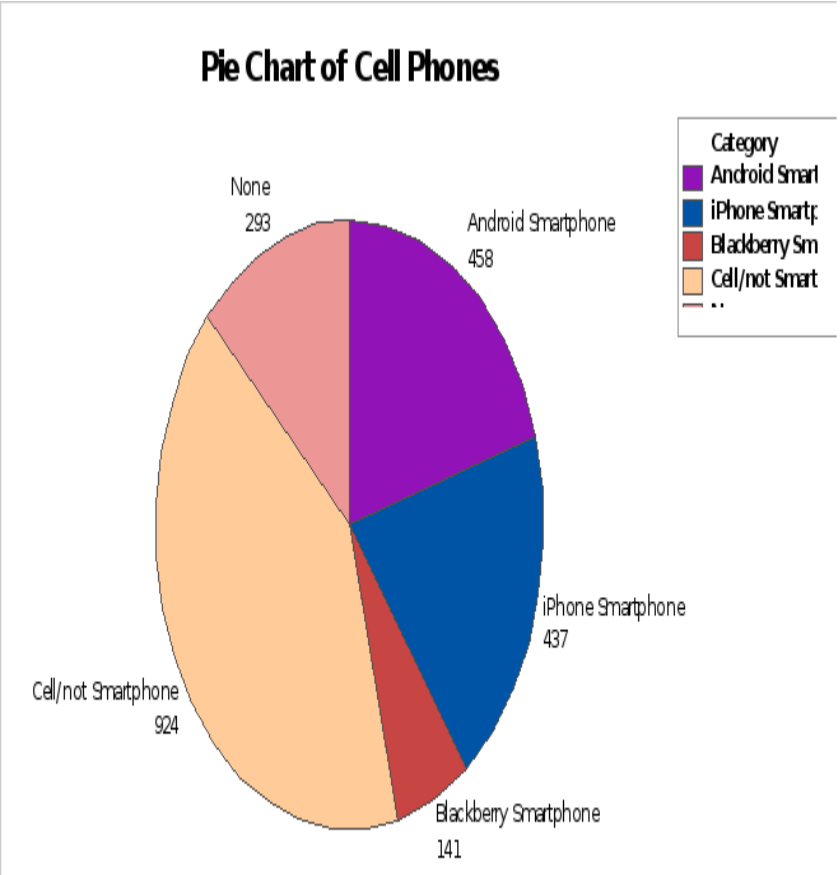

What percentage of the adults surveyed did **not** own a smartphone?

a. 13%
b. 45.9%
c. 41%
d. 54%

ANSWER: d

53. A particular advantage of a stem-and-leaf plot over a histogram or bar chart is that:

a. the stem-and-leaf plot can accommodate large amounts of data.
b. the shape of the stem-and-leaf plot is similar to the bar graph.
c. the actual data values are preserved in the stem-and-leaf plot.
d. the grouping of the data in a stem-and-leaf plot is uniform.

ANSWER: b

54. A student wants to use a curve to represent the number of students in each class over the school day. The student's friend says a bar chart should be used. Who is correct, and why?

a. The student; the curve is a more accurate representation.
b. The friend; the data on class sizes are discrete but a curve implies the data are continuous.

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c. Both; either form of the graph gives the same information.
d. Neither; the graph should present the cumulative frequency.

ANSWER: b

55. Which statement is **not** true about pie charts and relative frequencies?
a. The areas of slices on a pie chart are proportional to the relative frequencies.
b. Both the relative frequencies and the areas of the segments on a pie chart sum up to 100%.
c. It is equally easy to get a specific relative frequency value from both.
d. Pie charts are made using relative frequencies.

ANSWER: c

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