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

2. A data set consisting of two observations on each individual subject is a _____ data set.
   A) bivariate
   B) multivariate
   C) random
   D) univariate

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

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

5. If there are more than two observations on the same person, the data set is:
   A) bivariate.
   B) multivariate.
   C) random.
   D) univariate.

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
   C) numerical/quantitative
   D) numerical/qualitative

7. In a study of the effectiveness of a drug that is designed to reduce blood pressure, each individual participant has their blood pressure recorded in millimeters of mercury before and after taking the drug. Of what type is the data in this study?
   A) categorical/qualitative
   B) categorical/quantitative
   C) numerical/quantitative
   D) numerical/qualitative

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

9. A numeric data set is _____ if the set of all possible values is an interval of numbers.
   A) continuous
   B) discrete
   C) qualitative
   D) categorical

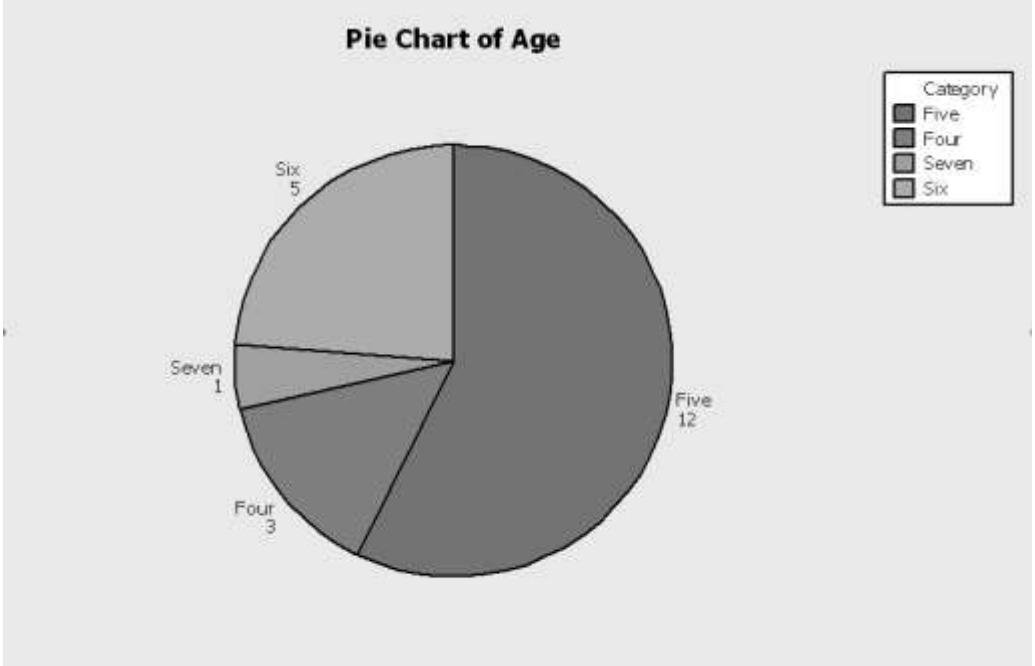
10. Bic corporation performs routine quality control testing on its lighters. Each lighter tested is struck and the trial is recorded as either a success (the lighter ignites) or a failure (the lighter does not ignite). This is an example of what kind of data?
    A) continuous
    B) discrete
    C) qualitative
    D) quantitative

11. In order 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 in seconds. What type of data are these?
    A) qualitative
    B) discrete
    C) continuous
    D) multivariate

12. Concerning qualitative data, the _____ of a particular class is the count for that class.
    A) relative frequency
    B) distribution
    C) frequency
    D) probability

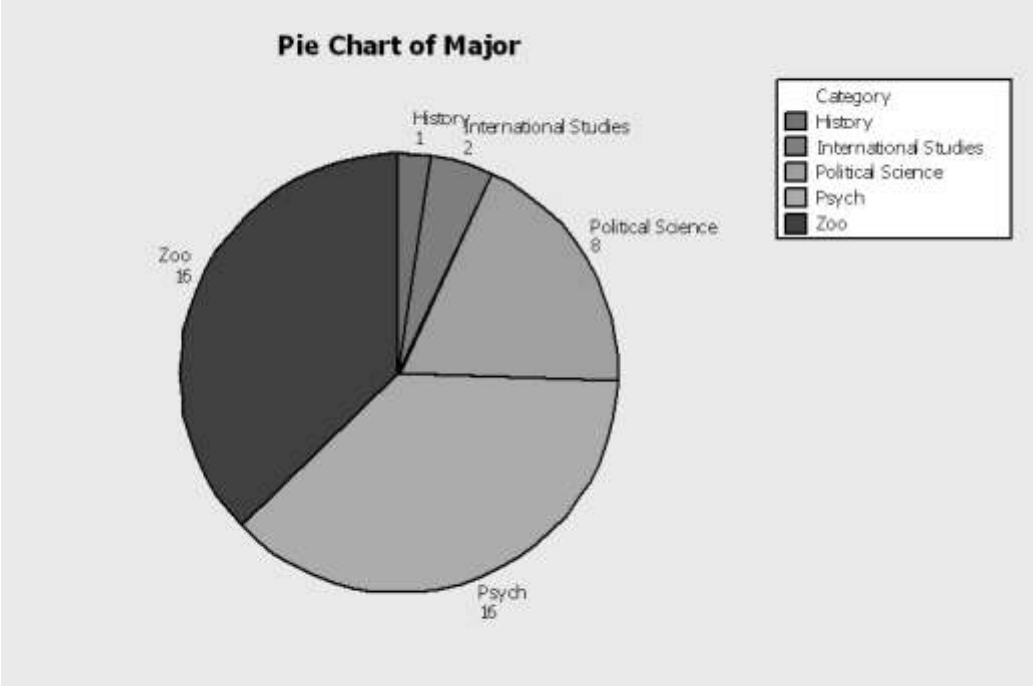
13. Concerning qualitative data, the _____ of a particular class is the frequency of the class divided by the total number of observations.
    A) relative frequency
    B) numeric center
    C) frequency
    D) None of the above

14.



Above is a pie chart summarizing the ages of a kindergarten class (4-, 5-, 6-, and 7-year-olds). What is the relative frequency of four-year-olds in this class?
    A) 3
    B) 4
    C) 0.143
    D) 0.190

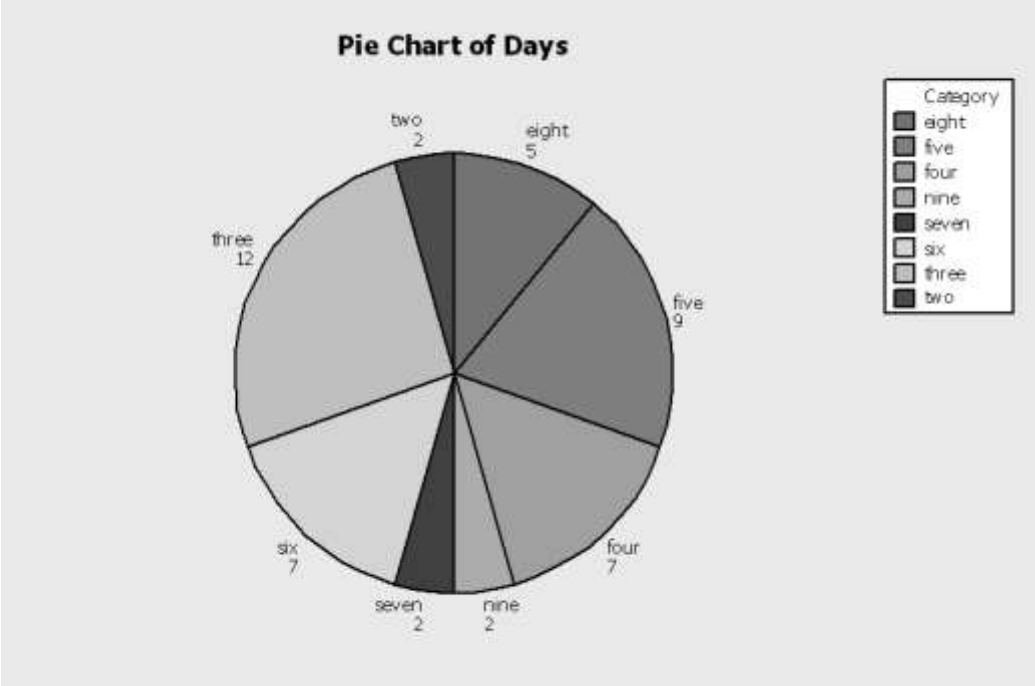
15.



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

A) 3.72
B) 16
C) 0.372
D) 8

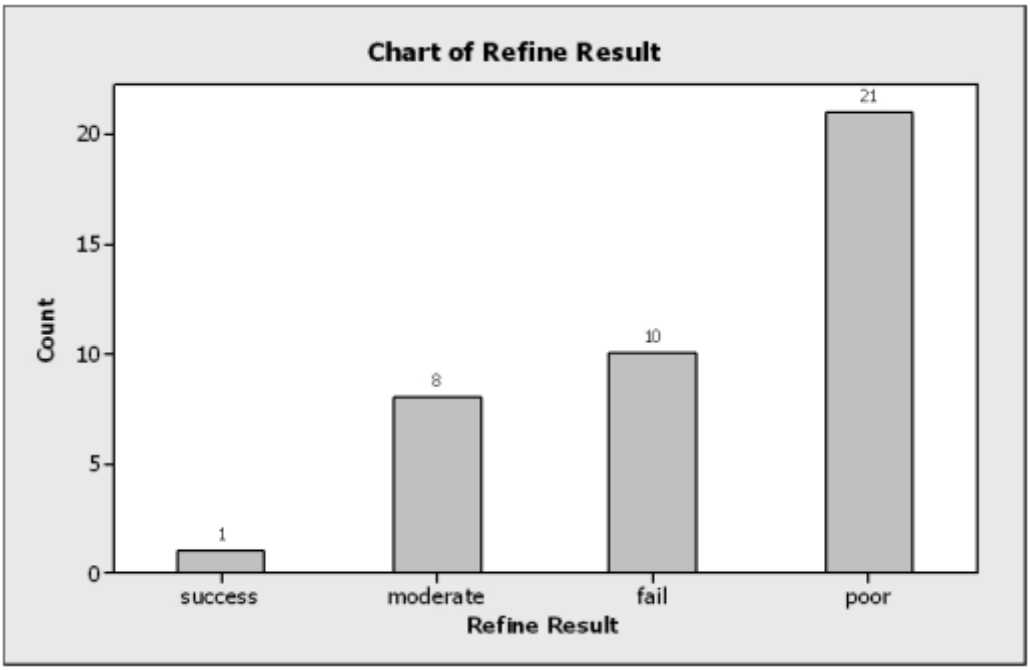
16.



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 above 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

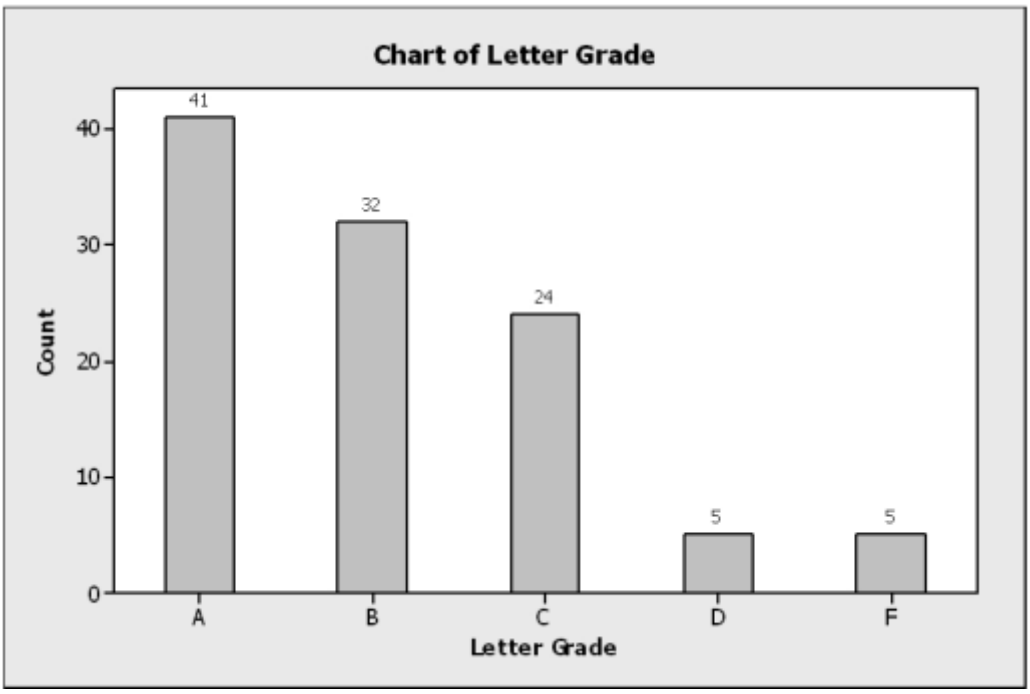
17.



This bar chart summarizes the results from a test on 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

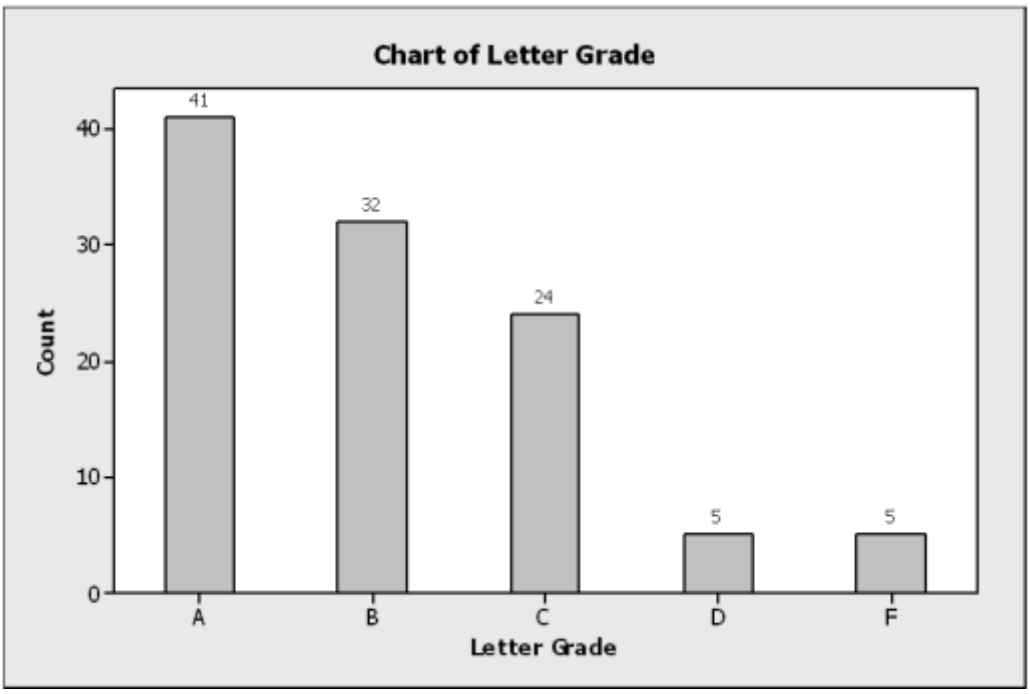
18.



Above is a bar chart of 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

19.



Above is a bar chart of 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

20.

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

The above frequency distribution table is a summary of 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

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

A) 1
B) 10
C) 100
D) 1000

22.

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

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

A) skewed.
B) uniform.
C) symmetric.
D) centered at 100.

23.

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

What value is represented by the bold and underlined "**<u>0</u>**" in the stem-and-leaf diagram above? (*Note:* It is bold and underlined for emphasis ONLY.)

A) 3
B) 30
C) 300
D) 3000

24.

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

What value is represented by the bold and underlined "**<u>0</u>**" in the stem-and-leaf diagram above? (*Note:* It is bold and underlined for emphasis ONLY.)

A) 4
B) 40
C) 400
D) 4001

25.

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

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

A) 31
B) 30001
C) 3001
D) 1

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

A) 4000
B) 400
C) 40
D) 4

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

A) qualitative.
B) continuous.
C) discrete.
D) categorical.

28. A frequency distribution table is BEST suited to summarize which type of data?
    A) continuous
    B) bivariate
    C) multivariate
    D) qualitative

29. Relative frequency is BEST suited to describe which data type?
    A) continuous
    B) quantitative
    C) multivariate
    D) qualitative

30. If all possible classes are represented, the sum of all relative frequencies must equal:
    A) 0.5.
    B) 1.
    C) 2.
    D) None of the above

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 dataset summarized in the stem-and-leaf diagram above is BEST described as:
    A) symmetric.
    B) bimodal.
    C) negatively skewed.
    D) positively skewed.

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).

33.

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

The above frequency distribution table is a summary of 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) More information is needed to answer the question.

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**	

The above frequency distribution table is a summary of 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) More information is needed to answer the question.

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**	

The above frequency distribution table is a summary of 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) More information is needed to answer the question.

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.

37. A distribution with only one peak is called:
    A) single peaking.
    B) multimodal.
    C) bimodal.
    D) unimodal.

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.

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 amount of values skewed across the center.
    D) an equal amount of large and small values.

40.

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**	

The above frequency distribution table is a summary of 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?
    A) 78
    B) 787
    C) 813
    D) More information is needed to answer the question.

41.

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**	

The above frequency distribution table is a summary of 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?
    A) 0.69
    B) 0.72
    C) 0.97
    D) More information is needed to answer the question.

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
C) 0.88
D) 0.762

43.

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

The stem-and-leaf plot above 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

44.

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

The stem-and-leaf plot above 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) More information is needed to answer the question.

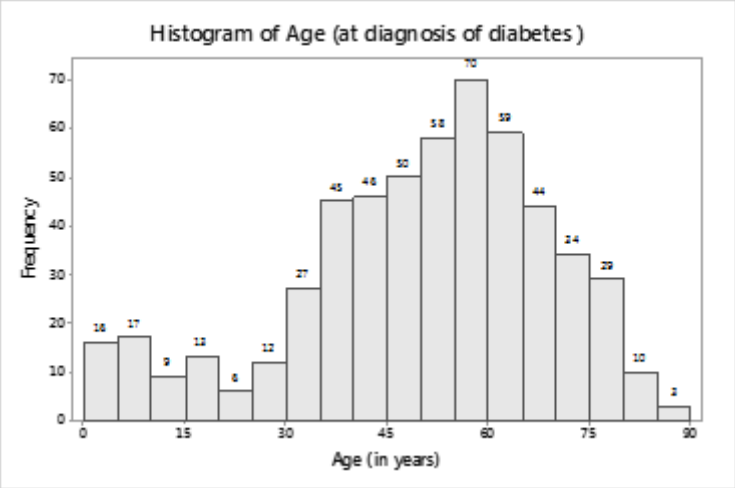
45.

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

The stem-and-leaf plot above 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

46.



Above is a histogram of the age at which 548 patients were first diagnosed with diabetes. The shape of this histogram is BEST described as:

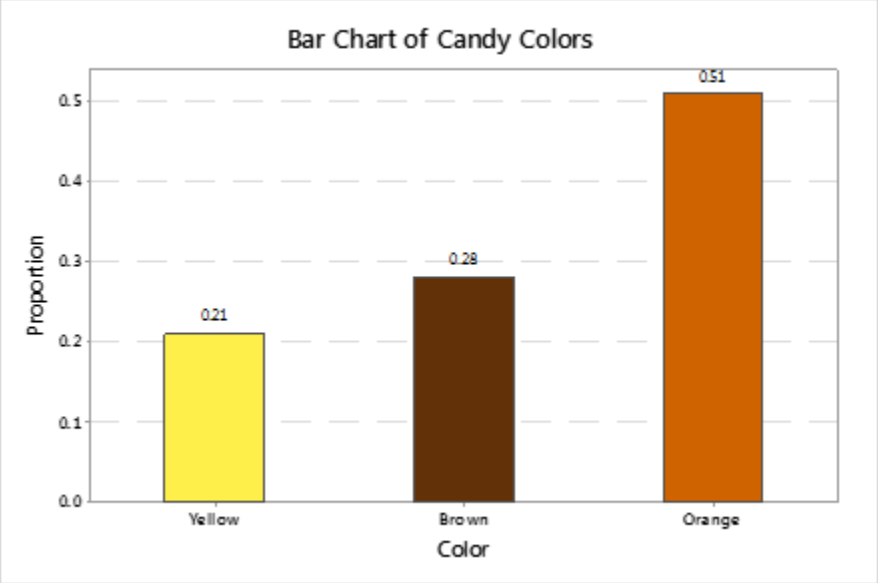
A) symmetric.
B) bimodal.
C) negatively skewed.
D) positively skewed.

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

48. A survey records the average study time spent each week by students at a large university. What type of data are these?
    A) continuous
    B) discrete
    C) qualitative
    D) categorical

49. A survey of the patients waiting to be seen in an emergency room recorded the mode of arrival, the waiting time, whether or not the patient is insured, and the blood type of the patients. This would result in what type of data set?
    A) bivariate
    B) multivariate
    C) random
    D) univariate

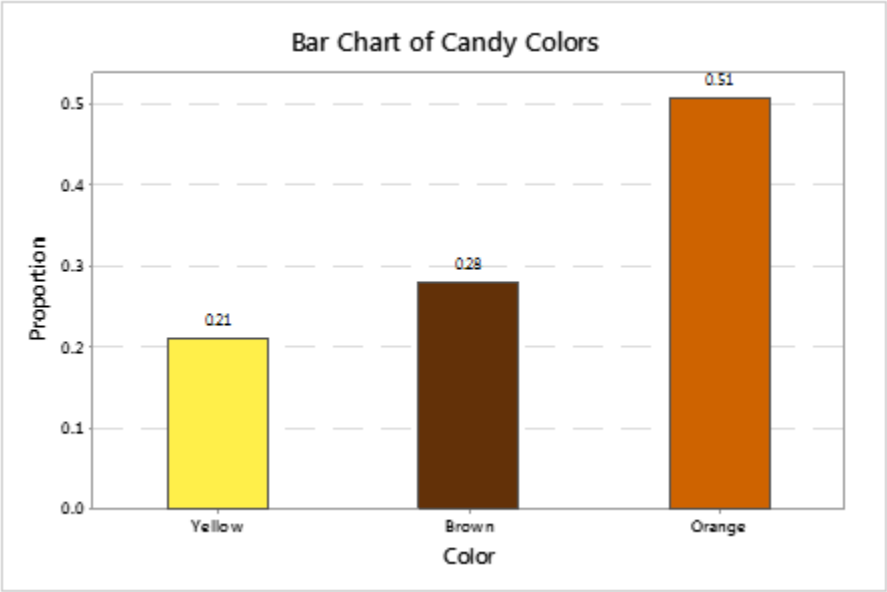
50. A student counted the number of candies of each color in a bag of 57 Reese's Pieces. The results are shown in the following bar graph.



How many of the candies were colored orange?

A) 12
B) 51
C) 29
D) More information is needed to answer the question.

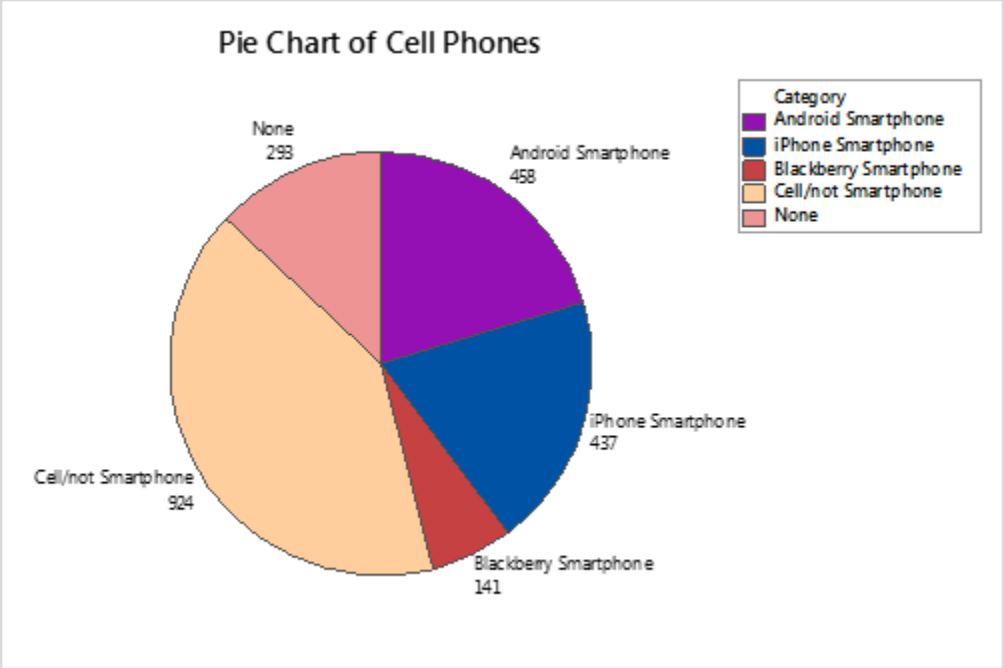
51. A student counted the number of candies of each color in a bag of 57 Reese's Pieces. The results are shown in the following bar graph.



What percentage of the candies were NOT colored orange?

A) 21%
B) 28%
C) 49%
D) 51%

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



What percentage of the adults surveyed did NOT own a smartphone?

A) 13%
B) 45.9%
C) 41%
D) 54%

Answer Key

1. D
2. A
3. A
4. C
5. B
6. A
7. C
8. B
9. A
10. C
11. C
12. C
13. A
14. C
15. B
16. B
17. C
18. D
19. A
20. A
21. C
22. C
23. B
24. B
25. A
26. B
27. C
28. D
29. D
30. B
31. D
32. C
33. A
34. C
35. D
36. D
37. D
38. C
39. B
40. A
41. C
42. B
43. D
44. B

45. A
46. B
47. C
48. A
49. B
50. C
51. C
52. D