MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Which of the following does not need to be done when constructing a frequency distribution? 1) _____
A) make the class width an even number
B) select the number of classes desired
C) use classes that are mutually exclusive
D) find the range

2) The lower class limit represents the smallest data value that can be included in the class. 2) _____
A) True B) False

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

3) When data are collected in original form, they are called _____. 3) _____

4) The _____ of a specific class is the number of data values contained in it. 4) _____

5) If a frequency distribution had class boundaries of 132.5-147.5, what would be the class width? 5) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

6) The following frequency distribution presents the weights in pounds (lb) of a sample of visitors to a health clinic. 6) _____

Weight (lb)	Frequency
90-99	1
100-109	4
110-119	4
120-129	3
130-139	7
140-149	6
150-159	4
160-169	2

What is the class width?
A) 80 B) 11 C) 10 D) 9

7) For the class 5-19, the upper class limit is 7) _____
A) 19 B) 5 C) 19.5 D) 4.5

8) What are the boundaries of the class 11-18? 8) _____
A) 7 B) 7.5 and 21.5 C) 10.5 and 18.5 D) 11 and 18

9) In an ungrouped frequency distribution of the average age of high school graduates, what would be the boundaries for the class of graduates who were reported to be 18 years old? 9) _____

A) 17.6-18.5 years old
B) 17.5-18.5 years old
C) 17-19 years old
D) 17.6-19.5 years old

10) What is the midpoint of the class 6-10? 10) _____

A) 8.5 B) 8 C) 4 D) 5

11) Greg wants to construct a frequency distribution for the political affiliation of the employees at Owen's Hardware Store. What type of distribution would be best? 11) _____

A) categorical B) grouped C) ungrouped D) cumulative

12) What is the lower class limit of the class 13–17? 12) _____

A) 12.5 B) 13 C) 15 D) 17

13) What is the midpoint of the class 17–20? 13) _____

A) 3 B) 18 C) 18.5 D) 1.5

14) What is the upper class boundary of the class 23-35 ? 14) _____

A) 35 B) 7 C) 35.5 D) 7.5

15) If the limits for a class were 20-38, the boundaries would be 19.5-38.5. 15) _____

A) True
B) False

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

16) For grouped frequency distributions, the _____ is obtained by adding the lower and upper limits and dividing by 2. 16) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

17) What is the lower class limit in the class 8-12? 17) _____

A) 8 B) 8.5 C) 10 D) 7.5

18) Which of the following pairs of class limits would be appropriate for grouping the numbers 11, 14, 9, and 16? 18) _____

A) 9-11 and 12-16
B) 9-12 and 13-16
C) 9-11 and 14-16
D) 8-12 and 12-16

19) Thirty students recorded the colors of their eyes, choosing from the colors brown, blue, green, hazel, and black. This data can be appropriately summarized in a(n) _____. 19) _____

A) categorical frequency distribution
B) open-ended distribution
C) upper boundary
D) grouped frequency distribution

20) What are the boundaries of the class 1.87-3.43? 20) _____

A) 1.865-3.435 B) 1.87-3.43 C) 1.82-3.48 D) 1.879-3.439

21) For the class 16.3-23.8, the width is 8.5. 21) _____

A) False B) True

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

22) When the range is large, and classes that are several units in width are needed, a _____ frequency distribution is used. 22) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

23) The cumulative frequency for a class is the sum of the frequencies of the classes less than and equal to the upper boundary of the specific class. 23) _____

A) False B) True

24) A recent statistics exam yielded the following 25 scores. Construct a grouped frequency distribution with the class limits shown below. 24) _____

63 86 77 51 67
55 89 63 68 96
81 82 44 80 90
77 87 74 91 59
77 79 45 87 97

Class Limits	Tally	Frequency
41-50		
51-60		
61-70		
71-80		
81-90		
91-100		

A)

Class Limits	Frequency
41-50	2
51-60	3
61-70	5
71-80	5
81-90	6
91-100	4

B)

Class Limits	Frequency
41-50	2
51-60	3
61-70	4
71-80	6
81-90	7
91-100	3

C)

Class Limits	Frequency
41-50	3
51-60	2
61-70	4
71-80	7
81-90	6
91-100	3

D)

Class Limits	Frequency
41-50	2
51-60	2
61-70	5
71-80	6
81-90	7
91-100	3

25) The following frequency distribution presents the frequency of passenger vehicles that pass through a certain intersection from 8:00 AM to 9:00 AM on a particular day. 25) _____

Vehicle Type	Frequency
Motorcycle	11
Sedan	60
SUV	80
Truck	39

What is the relative frequency of the Motorcyle category?

A) 11% B) 0.138 C) 0.058 D) 11

26) The following frequency distribution presents the frequency of passenger vehicles that pass through a certain intersection from 8:00 AM to 9:00 AM on a particular day. 26) _____

Vehicle Type	Frequency
Motorcycle	8
Sedan	87
SUV	88
Truck	31

Construct a relative frequency distribution for the data.

A)

Vehicle Type	Relative Frequency
Motorcycle	0.037%
Sedan	0.407%
SUV	0.411%
Truck	0.145%

B)

Vehicle Type	Relative Frequency
Motorcycle	0.091
Sedan	0.989
SUV	1
Truck	0.352

C)

Vehicle Type	Relative Frequency
Motorcycle	0.08
Sedan	0.87
SUV	0.88
Truck	0.31

D)

Vehicle Type	Relative Frequency
Motorcycle	0.037
Sedan	0.407
SUV	0.411
Truck	0.145

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

27) Construct a frequency polygon from the following frequency distribution. 27) _____

Temperature	**Frequency**
28.5-31.5	1
31.5-34.5	3
34.5-37.5	6
37.5-40.5	10
40.5-43.5	8
43.5-46.5	7

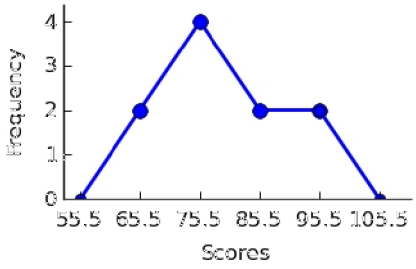
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

28) A recent statistics exam yielded the following 10 scores. Construct a frequency polygon distribution using the class limits shown below. 28) _____

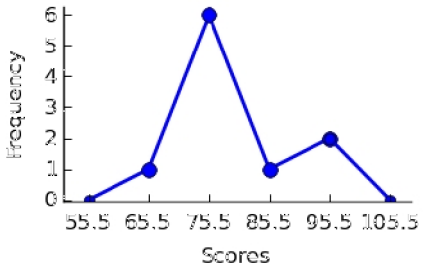
80, 99, 77, 67, 93, 71, 76, 86, 79, 71

Class Limits	Midpoints	Tally	Frequency
61-70			
71-80			
81-90			
91-100			

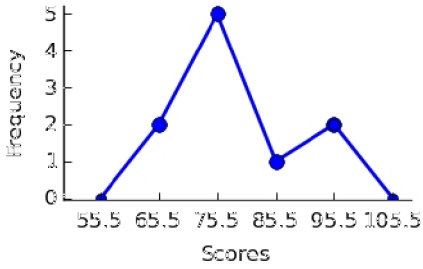
A)


Frequency
0
1
2
3
4
55.5 65.5 75.5 85.5 95.5 105.5
Scores

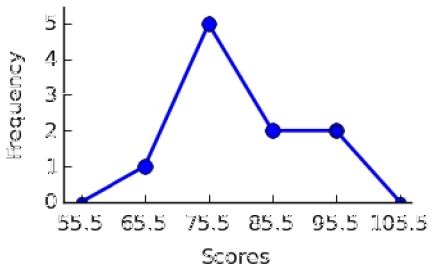
B)


Frequency
0
1
2
3
4
5
6
55.5 65.5 75.5 85.5 95.5 105.5
Scores

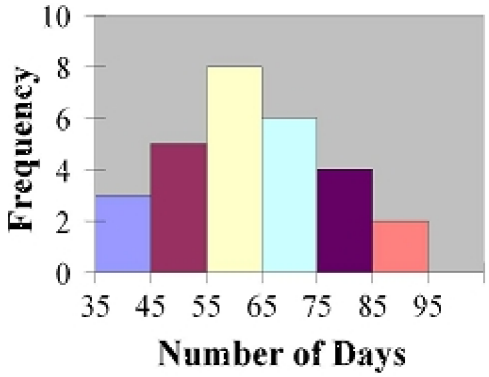
C)


Frequency
0
1
2
3
4
5
55.5 65.5 75.5 85.5 95.5 105.5
Scores

D)

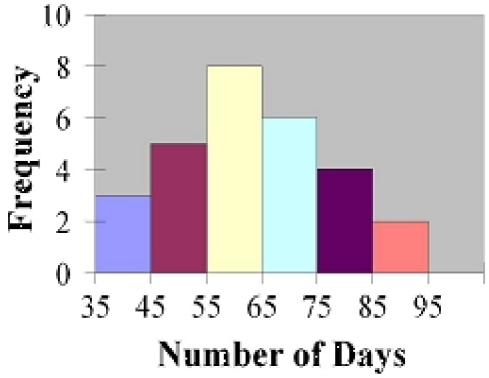

Frequency
0
1
2
3
4
5
55.5 65.5 75.5 85.5 95.5 105.5
Scores

29) Find the class with the least number of data values. 29) _____



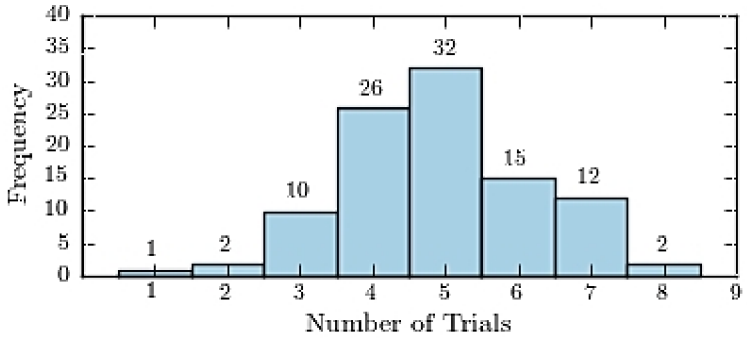
A) 75-85 B) 55-65 C) 65-75 D) 85-95

30) Find the class with the greatest number of data values 30) _____



A) 55-65 B) 75-85 C) 65-75 D) 85-95

31) One hundred students are shown an eight-digit number on a piece of cardboard for three seconds and are asked to then recite the number from memory. The process is repeated until the student accurately recites the entire number from memory. The following histogram presents the number of trials it took each student to memorize the number. 31) _____



How many students memorized the number in three trials or less?

A) 87 B) 3 C) 14 D) 13

32) An ogive is also called a cumulative frequency graph. 32) _____

A) False B) True

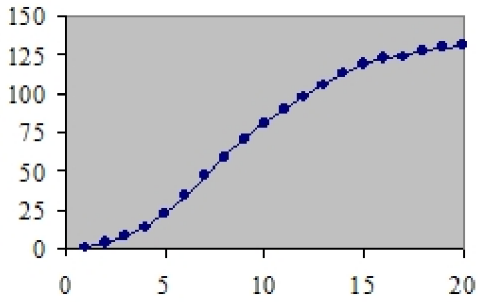
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

33) The three most commonly used graphs in research are the histogram, the _____, and the cumulative frequency graph (ogive). 33) _____

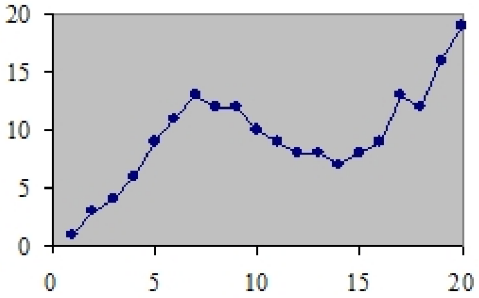
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

34) Which of the following could be a cumulative frequency graph? 34) _____

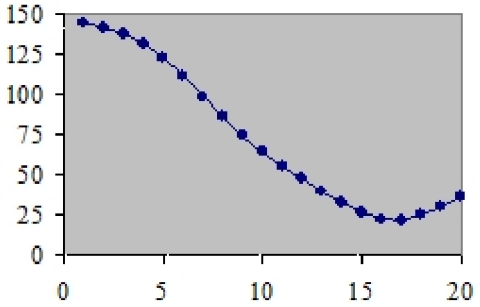
A)



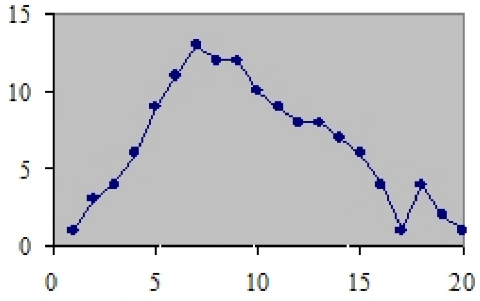
B)



C)

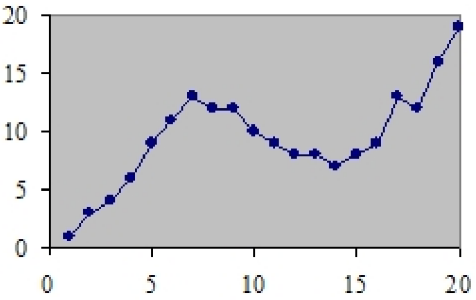


D)

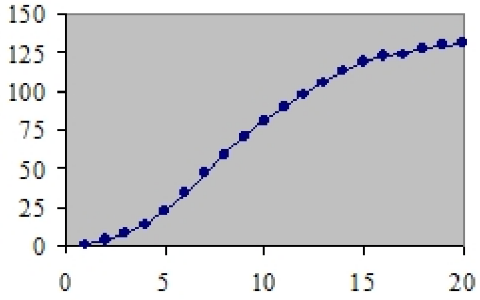


35) Which of the following could be an ogive? 35) _____

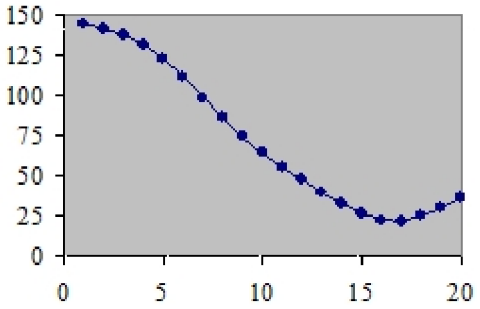
A)



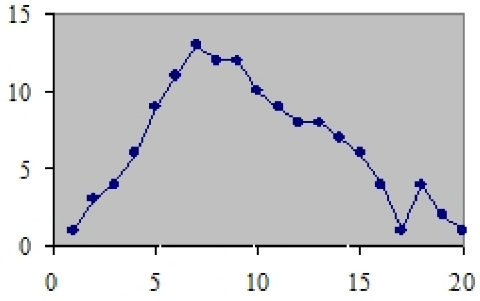
B)



C)

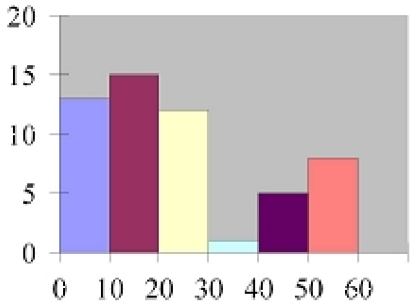


D)

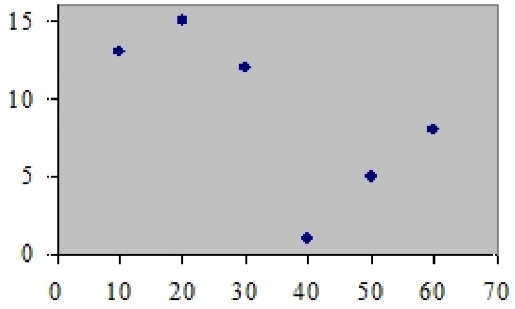


36) Which of the following is a histogram? 36) _____

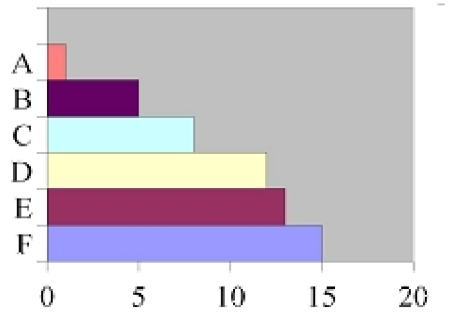
A)



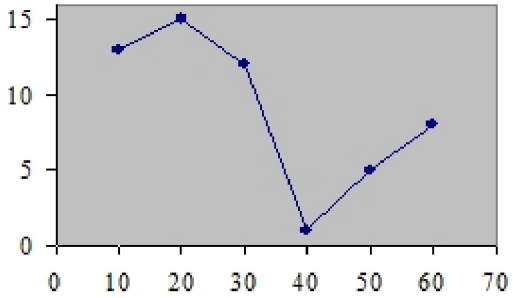
B)



C)



D)



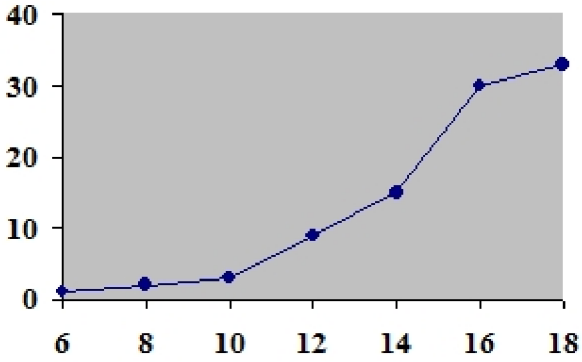
37) The frequency polygon and the histogram are two different ways to represent the same data set. 37) _____

A) True B) False

38) For a given data set, the ogive and the frequency polygon will have the same overall shape. 38) _____

A) True B) False

39) Using the ogive shown below, what is the cumulative frequency of data values less than or equal to 16 ? 39) _____



A) 66 B) 60 C) 20 D) 30

40) Graphs that show distributions using proportions instead of raw data as frequencies are called 40) _____

A) relative frequency graphs. B) frequency polygons.

C) ogive graphs. D) histograms.

41) Which type of graph represents the data by using vertical bars of various heights to indicate frequencies? 41) _____

A) cumulative frequency B) frequency polygon

C) histogram D) ogive

42) The frequency polygon is a graph that displays the data by using lines that connect points plotted for the frequencies at the midpoints of the classes. 42) _____

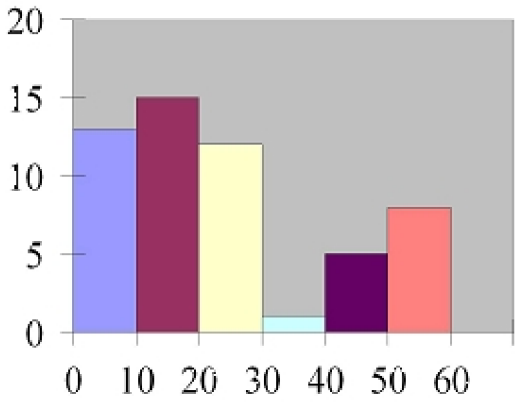
A) False B) True

43) A histogram is a graph that represents the cumulative frequencies for the classes in a frequency distribution. 43) _____

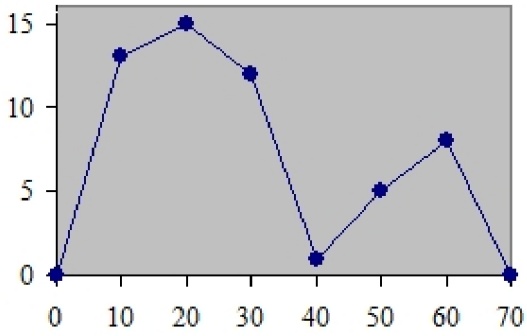
A) False B) True

44) Which of the following is a frequency polygon? 44) _____

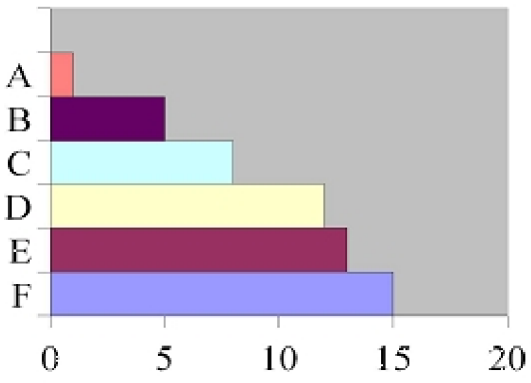
A)



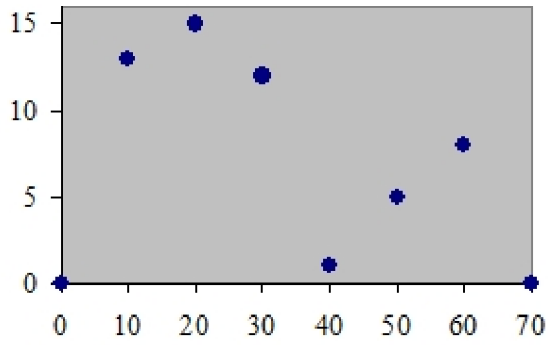
B)



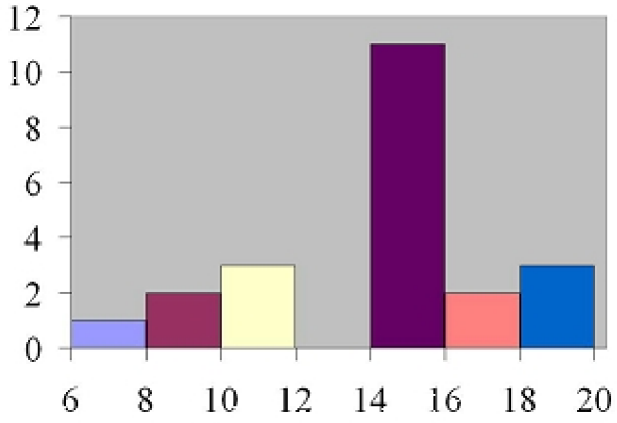
C)



D)



45) How many values are in the data set whose histogram is shown below ? 45) _____



A) 72 B) 22 C) 76 D) 6

46) Given the following frequency distribution, how many pieces of data were less than 28.5? 46) _____

Class Boundaries	Frequencies
13.5-18.5	4
18.5-23.5	9
23.5-28.5	12
28.5-33.5	15
33.5-38.5	17

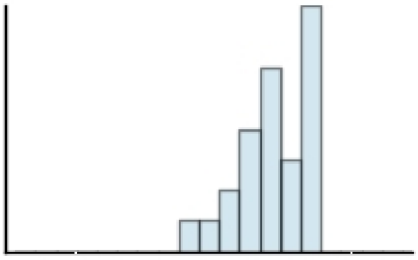
A) 12 B) 44 C) 13 D) 25

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

47) If the graph of a frequency distribution has a peak and the data tapers off more slowly to the right and more quickly to the left, the distribution is said to be _____. 47) _____

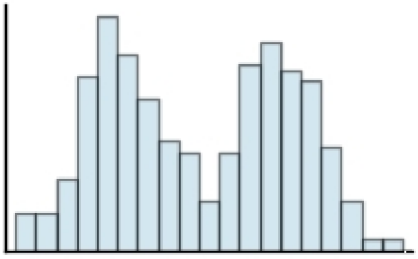
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

48) Classify the histogram as skewed to the left, skewed to the right, or approximately symmetric. 48) _____



A) approximately symmetric
B) skewed to the left
C) skewed to the right

49) Classify the histogram as unimodal or bimodal. 49) _____



A) unimodal B) bimodal

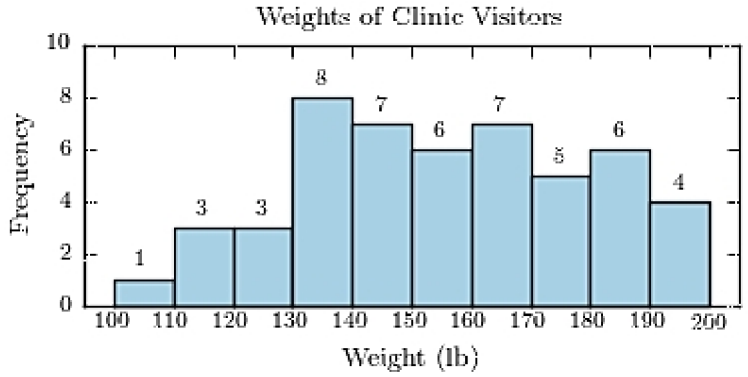
50) The following frequency distribution presents the weights in pounds (lb) of a sample of visitors to a health clinic. 50) _____

Weights of Clinic Visitors

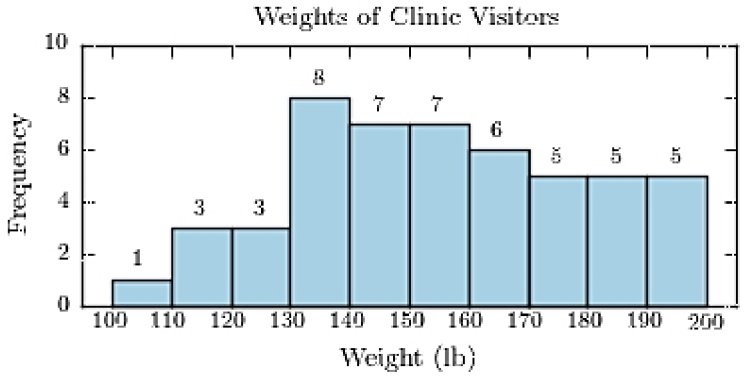
Weight (lb)	Frequency
100–109	1
110–119	3
120–129	3
130–139	8
140–149	7
150–159	7
160–169	6
170–179	5
180–189	6
190–199	4

Construct a frequency histogram.

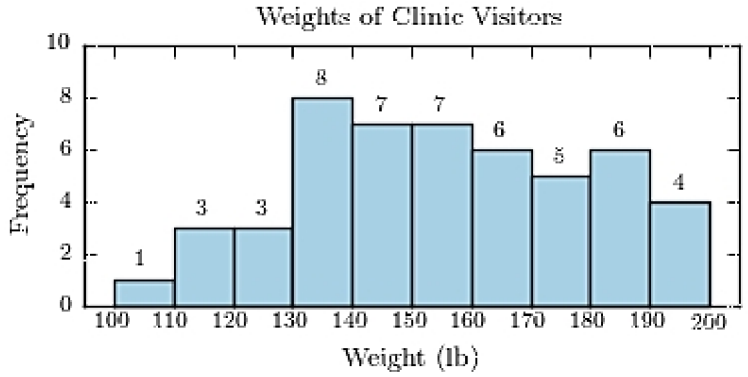
A)


Weights of Clinic Visitors
Frequency
Weight (lb)
0
2
4
6
8
10
100
110
120
130
140
150
160
170
180
190
200
1
3
3
8
7
6
7
5
6
4

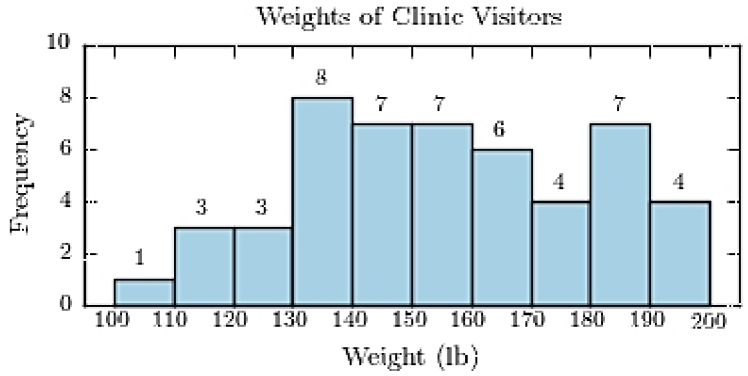
B)


Weights of Clinic Visitors
Frequency
Weight (lb)
0
2
4
6
8
10
100
110
120
130
140
150
160
170
180
190
200
1
3
3
8
7
7
6
5
5
5

C)


Weights of Clinic Visitors
Frequency
Weight (lb)
0
2
4
6
8
10
100
110
120
130
140
150
160
170
180
190
200
1
3
3
8
7
7
6
5
6
4

D)

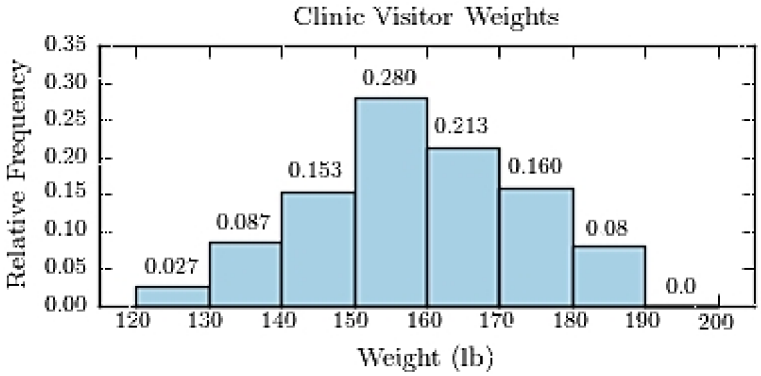

Weights of Clinic Visitors
Frequency
Weight (lb)
0
2
4
6
8
10
100
110
120
130
140
150
160
170
180
190
200
1
3
3
8
7
7
6
4
7
4

51) The following frequency distribution presents the weights in pounds (lb) of a sample of visitors to a health clinic. 51) _____

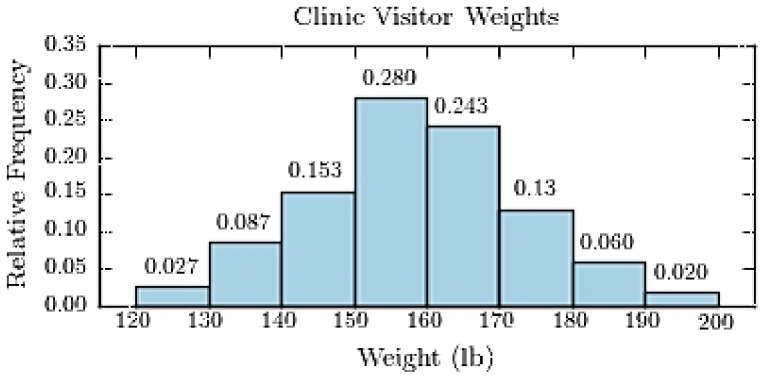
Clinic Visitor Weights	
Weight (lb)	Frequency
120-129	4
130-139	13
140-149	23
150-159	42
160-169	32
170-179	24
180-189	9
190-199	3

Construct a relative frequency histogram.

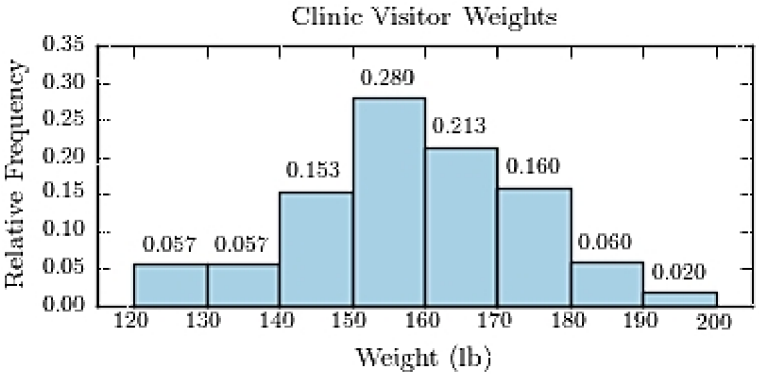
A)



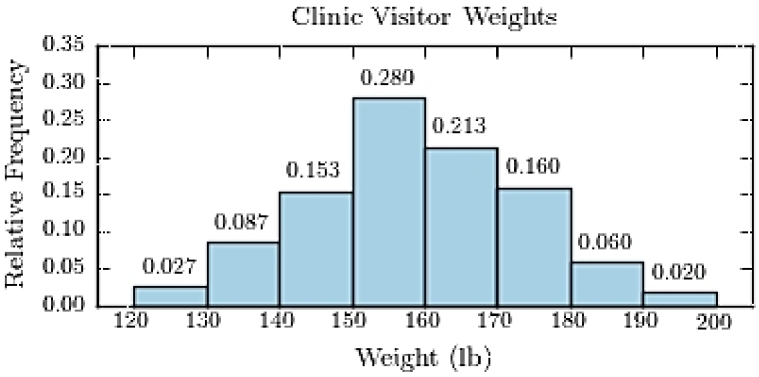
B)



C)



D)



52) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 52) _____

Construct a frequency distribution using a class width of 10, and using 0 as the lower class limit for the first class.

76.59	48.55	93.66	60.17	39.10
93.28	65.43	34.12	80.41	77.16
80.07	93.46	39.19	43.84	44.70
68.74	89.98	6.97	52.86	68.93

A)

Convenience Store Gas Purchases	
Amount (dollars)	Frequency
0.00-9.99	1
10.00-19.99	0
20.00-29.99	0
30.00-39.99	4
40.00-49.99	2
50.00-59.99	1
60.00-69.99	4
70.00-79.99	2
80.00-89.99	3
90.00-99.99	3

B)

Convenience Store Gas Purchases	
Amount (dollars)	Frequency
0.00-9.99	1
10.00-19.99	0
20.00-29.99	1
30.00-39.99	2
40.00-49.99	3
50.00-59.99	1
60.00-69.99	4
70.00-79.99	2
80.00-89.99	3
90.00-99.99	3

C)

Convenience Store Gas Purchases	
Amount (dollars)	Frequency
0.00-9.99	1
10.00-19.99	0
20.00-29.99	0
30.00-39.99	3
40.00-49.99	3
50.00-59.99	1
60.00-69.99	4
70.00-79.99	2
80.00-89.99	3
90.00-99.99	3

D)

Convenience Store Gas Purchases	
Amount (dollars)	Frequency
0.00-9.99	1
10.00-19.99	0
20.00-29.99	0
30.00-39.99	3
40.00-49.99	3
50.00-59.99	1
60.00-69.99	4
70.00-79.99	2
80.00-89.99	4
90.00-99.99	2

53) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 53) _____

Construct a relative frequency distribution using a class width of 10, and using 0 as the lower class limit for the first class.

44.52	72.67	51.20	59.41	64.86
98.05	80.24	56.18	51.93	46.17
88.08	46.49	24.48	50.26	36.77
27.61	6.56	22.75	36.65	74.55

A)

Convenience Store Gas Purchases	
Amount (dollars)	Relative Frequency
0.00-9.99	0.050
10.00-19.99	0.000
20.00-29.99	0.150
30.00-39.99	0.100
40.00-49.99	0.150
50.00-59.99	0.250
60.00-69.99	0.040
70.00-79.99	0.110
80.00-89.99	0.100
90.00-99.99	0.050

B)

Convenience Store Gas Purchases	
Amount (dollars)	Relative Frequency
0.00-9.99	0.050
10.00-19.99	0.000
20.00-29.99	0.150
30.00-39.99	0.100
40.00-49.99	0.150
50.00-59.99	0.250
60.00-69.99	0.050
70.00-79.99	0.100
80.00-89.99	0.100
90.00-99.99	0.050

C)

Convenience Store Gas Purchases	
Amount (dollars)	Relative Frequency
0.00-9.99	0.050
10.00-19.99	0.000
20.00-29.99	0.150
30.00-39.99	0.100
40.00-49.99	0.150
50.00-59.99	0.240
60.00-69.99	0.060
70.00-79.99	0.100
80.00-89.99	0.100
90.00-99.99	0.050

D)

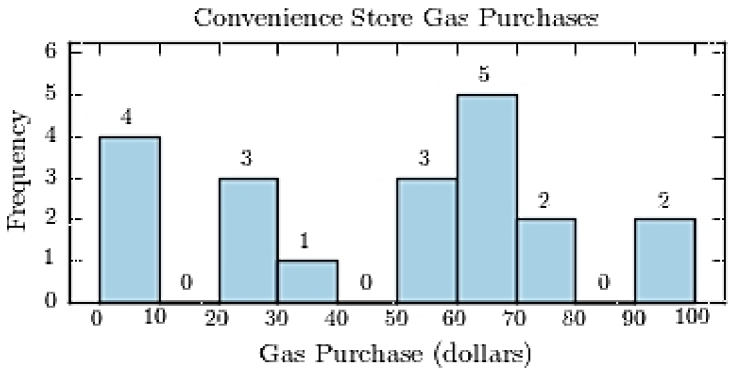
Convenience Store Gas Purchases	
Amount (dollars)	Relative Frequency
0.00-9.99	0.035
10.00-19.99	0.015
20.00-29.99	0.150
30.00-39.99	0.100
40.00-49.99	0.150
50.00-59.99	0.250
60.00-69.99	0.050
70.00-79.99	0.100
80.00-89.99	0.100
90.00-99.99	0.050

54) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 54) _____

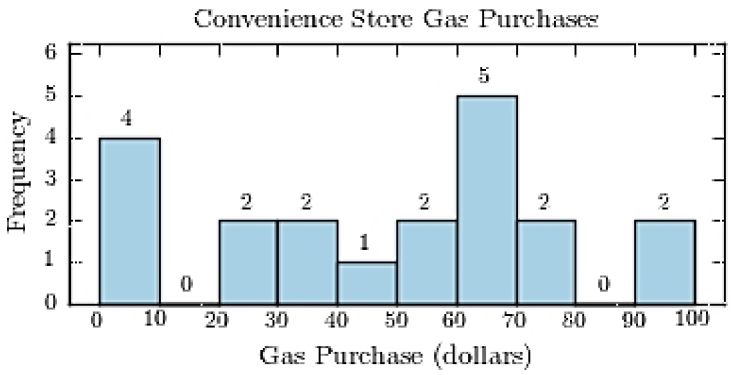
Construct a frequency histogram using a class width of 10, and using 0 as the lower class limit for the first class.

95	99	4	75	23
26	27	65	68	69
31	7	72	67	46
0	46	1	53	67

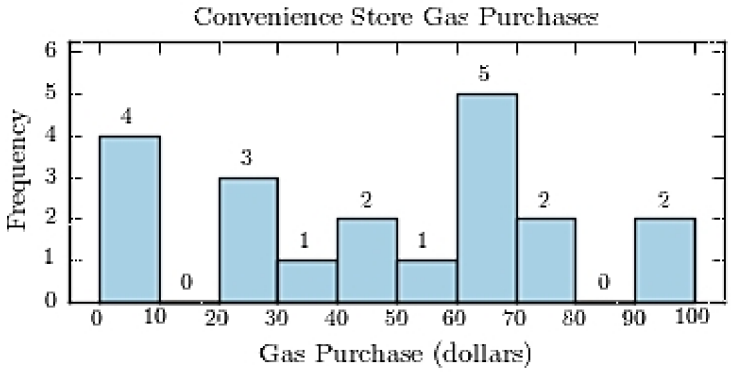
A)



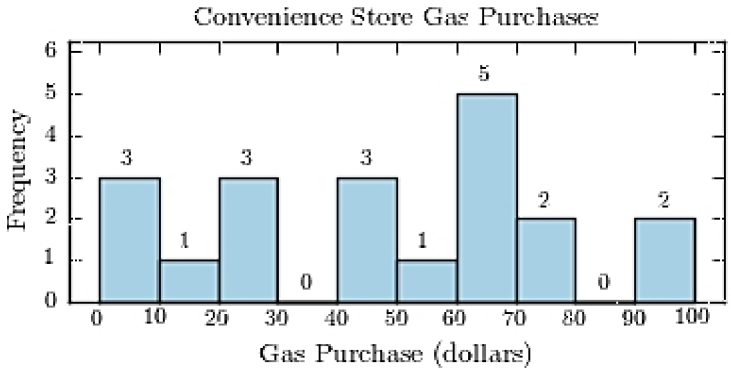
B)



C)



D)

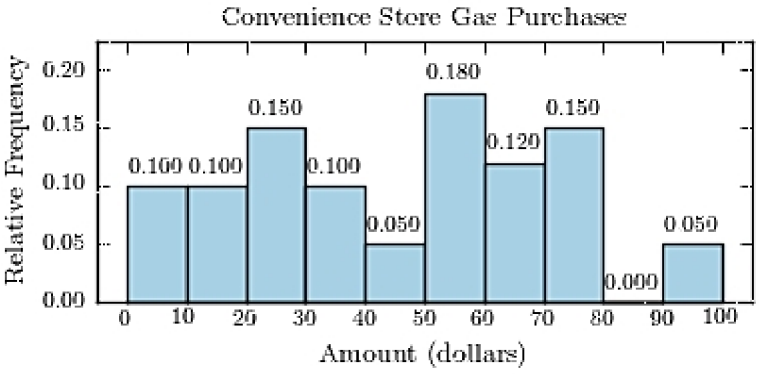


55) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 55) _____

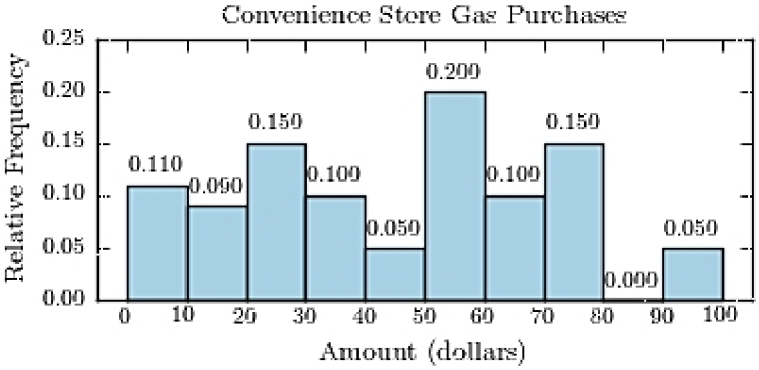
Construct a relative frequency histogram using a class width of 10, and using 0 as the lower class limit for the first class.

51.13	6.11	36.05	22.27	94.54
49.64	52.78	79.28	51.88	6.29
33.57	53.92	24.91	23.89	79.10
14.86	63.94	15.87	76.44	60.96

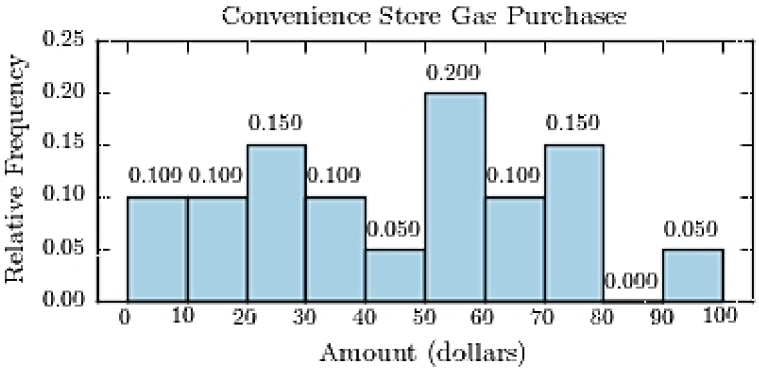
A)


Convenience Store Gas Purchases
Relative Frequency
0.00
0.05
0.10
0.15
0.20
0.100 0.100 0.150 0.100 0.050 0.180 0.120 0.150 0.000 0.050
0 10 20 30 40 50 60 70 80 90 100
Amount (dollars)

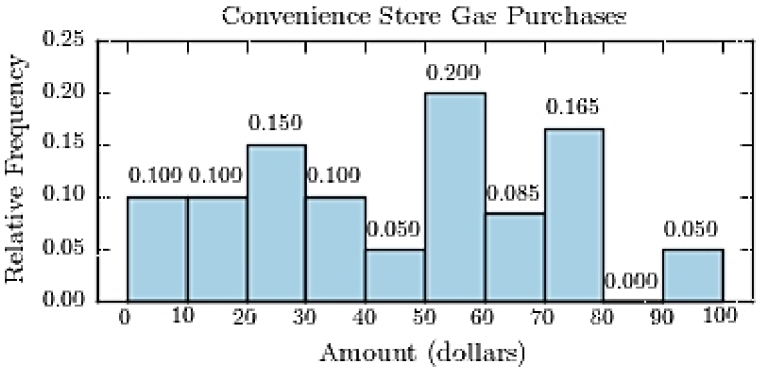
B)


Convenience Store Gas Purchases
Relative Frequency
0.00
0.05
0.10
0.15
0.20
0.25
0.110 0.090 0.150 0.100 0.050 0.200 0.100 0.150 0.000 0.050
0 10 20 30 40 50 60 70 80 90 100
Amount (dollars)

C)


Convenience Store Gas Purchases
Relative Frequency
0.00
0.05
0.10
0.15
0.20
0.25
0.100 0.100 0.150 0.100 0.050 0.200 0.100 0.150 0.000 0.050
0 10 20 30 40 50 60 70 80 90 100
Amount (dollars)

D)

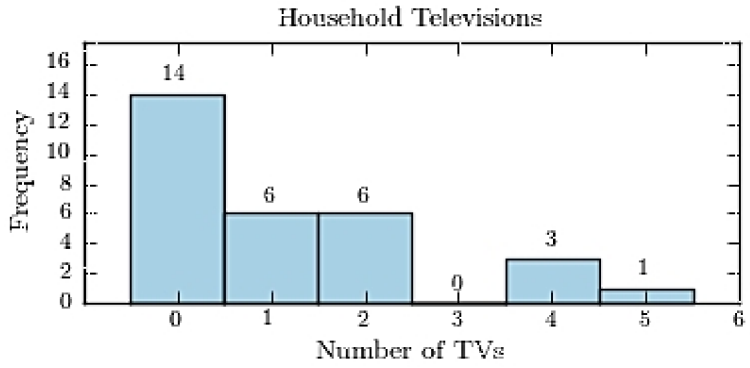


56) Thirty households were surveyed for the number of televisions in each home. Following are the results. 56) _____

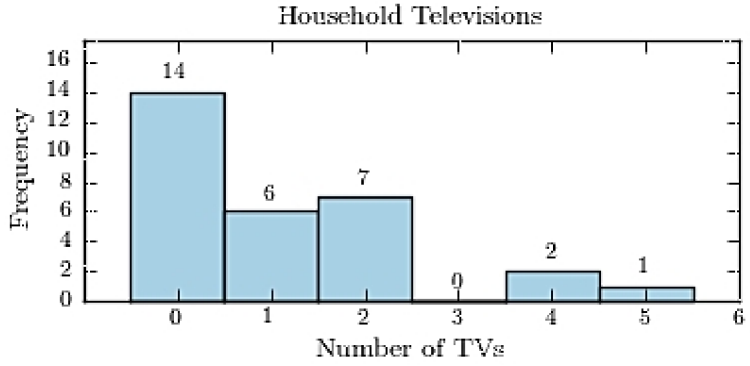
2	2	0	1	1	2	0	0	5	2
4	4	2	1	0	0	0	0	0	0
0	2	0	0	3	1	1	1	0	0

Construct a frequency histogram.

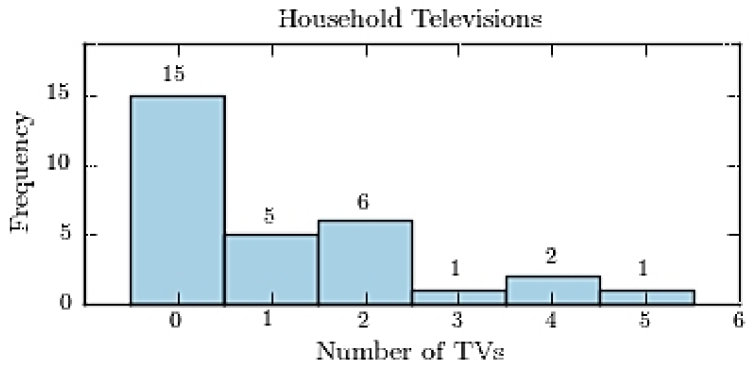
A)



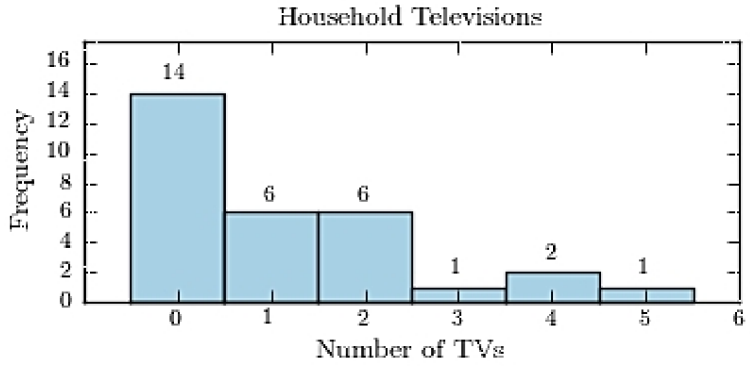
B)



C)



D)

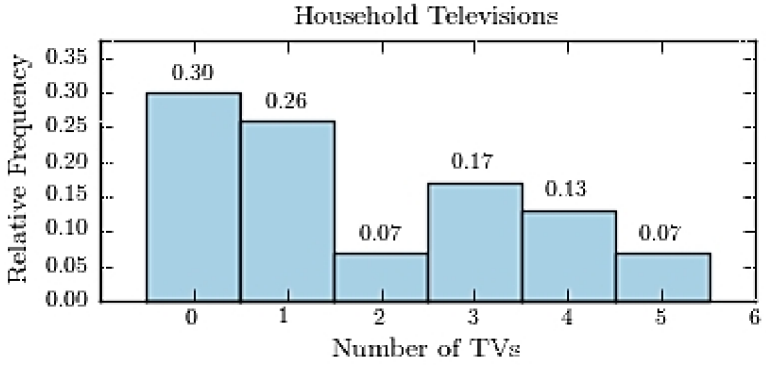


57) Thirty households were surveyed for the number of televisions in each home. Following are the results. 57) _____

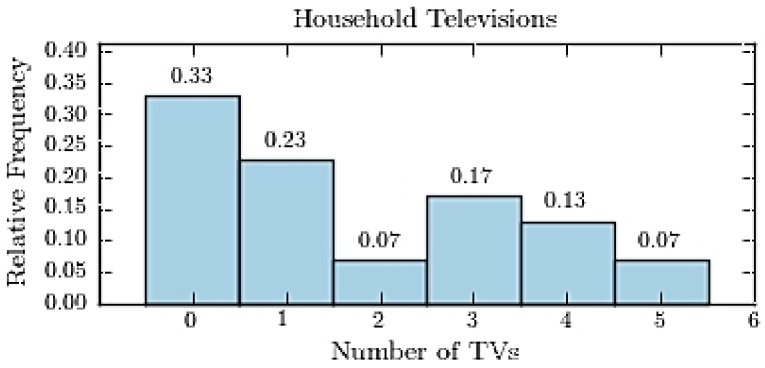
4	0	4	3	0	0	4	1	0	4
0	1	1	0	1	1	5	2	5	1
3	0	3	0	1	0	3	2	3	0

Construct a relative frequency histogram.

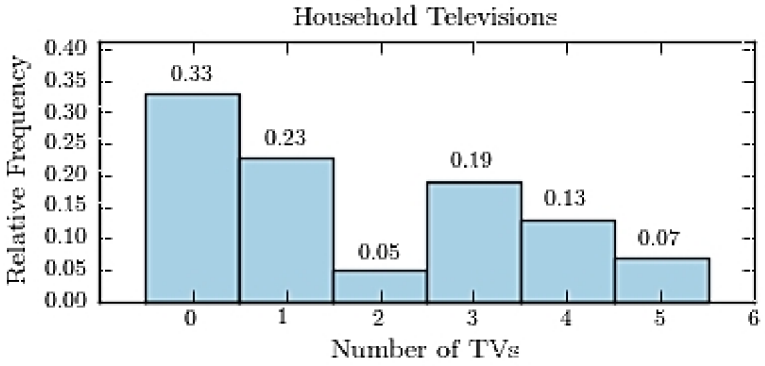
A)



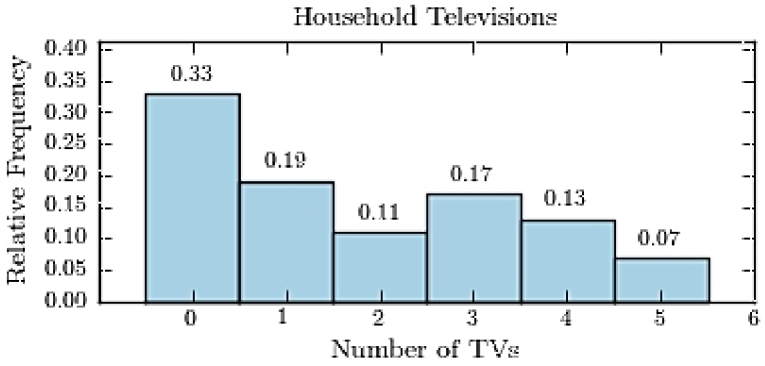
B)


Household Televisions
Relative Frequency
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.33
0.23
0.07
0.17
0.13
0.07
0
1
2
3
4
5
6
Number of TVs

C)


Household Televisions
Relative Frequency
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.33
0.23
0.05
0.19
0.13
0.07
0
1
2
3
4
5
6
Number of TVs

D)

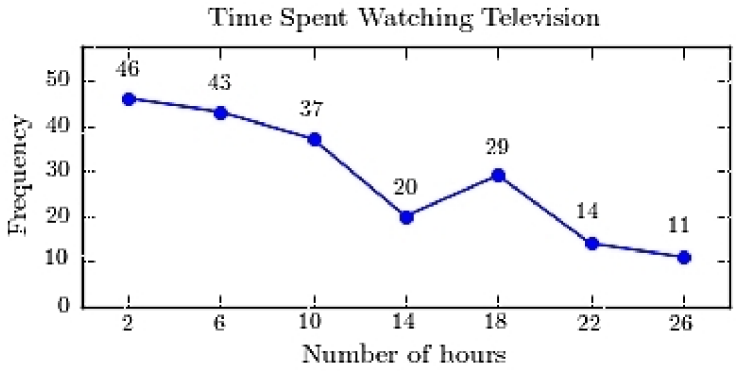

Household Televisions
Relative Frequency
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.33
0.19
0.11
0.17
0.13
0.07
0
1
2
3
4
5
6
Number of TVs

58) A sample of 200 high school students were asked how many hours per week they spend watching television.The following frequency distribution presents the results. 58) _____

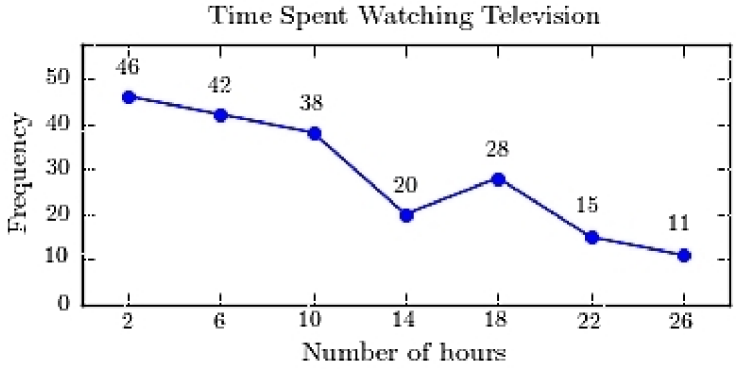
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	46
4.0-7.9	43
8.0-11.9	37
12.0-15.9	20
16.0-19.9	28
20.0-23.9	15
24.0-27.9	11

Construct a frequency polygon for the frequency distribution.

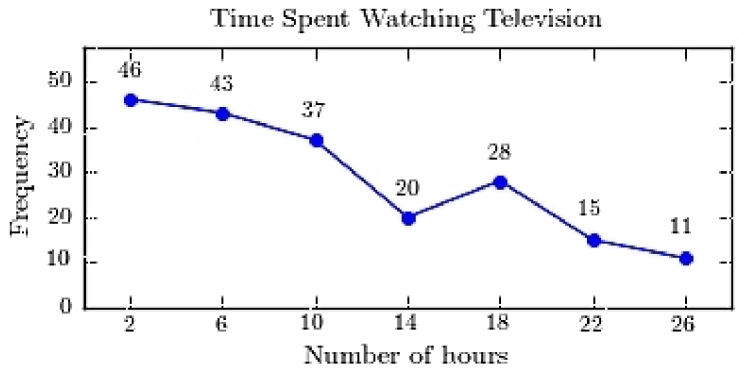
A)



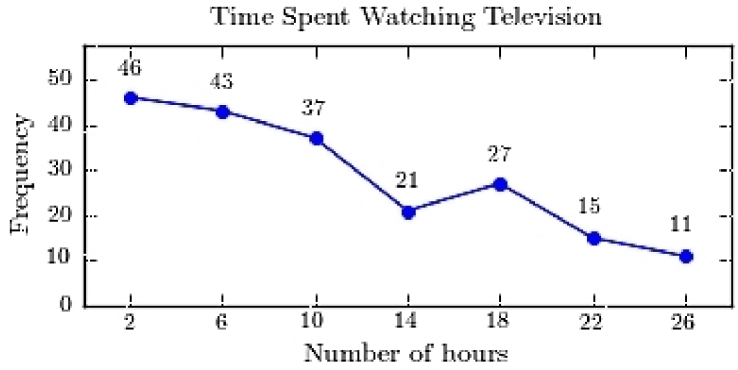
B)



C)



D)

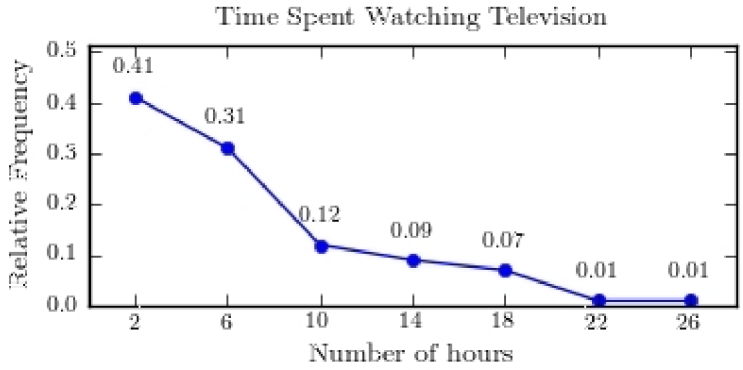


59) A sample of 200 high school students were asked how many hours per week they spend watching television.The following frequency distribution presents the results. 59) _____

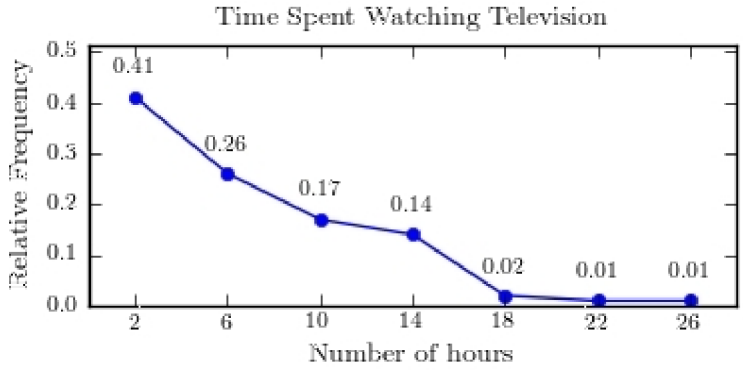
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	81
4.0-7.9	51
8.0-11.9	34
12.0-15.9	17
16.0-19.9	13
20.0-23.9	2
24.0-27.9	2

Construct a relative frequency polygon for the frequency distribution.

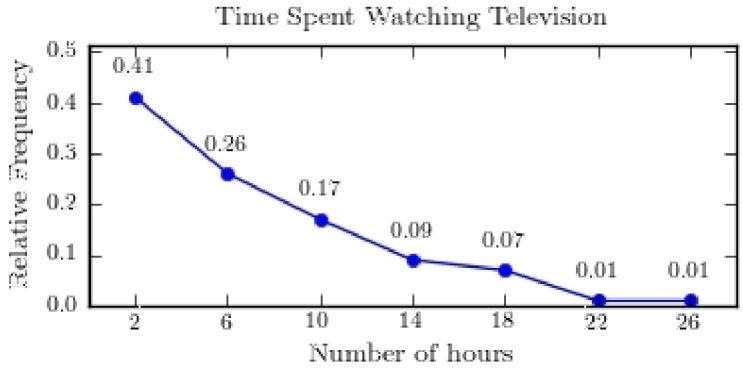
A)


Time Spent Watching Television
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
0.41
0.31
0.12
0.09
0.07
0.01
0.01
2
6
10
14
18
22
26
Number of hours

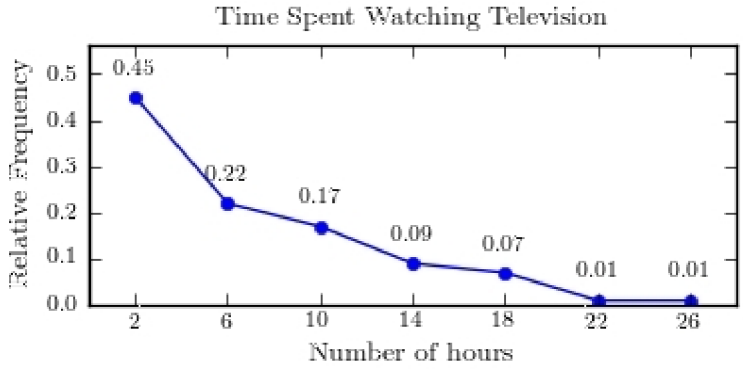
B)


Time Spent Watching Television
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
0.41
0.26
0.17
0.14
0.02
0.01
0.01
2
6
10
14
18
22
26
Number of hours

C)


Time Spent Watching Television
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
0.41
0.26
0.17
0.09
0.07
0.01
0.01
2
6
10
14
18
22
26
Number of hours

D)

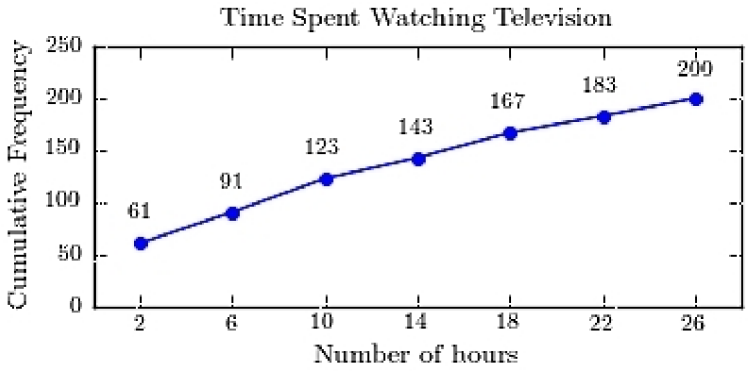

Time Spent Watching Television
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
0.45
0.22
0.17
0.09
0.07
0.01
0.01
2
6
10
14
18
22
26
Number of hours

60) A sample of 200 high school students were asked how many hours per week they spend watching television.The following frequency distribution presents the results. 60) _____

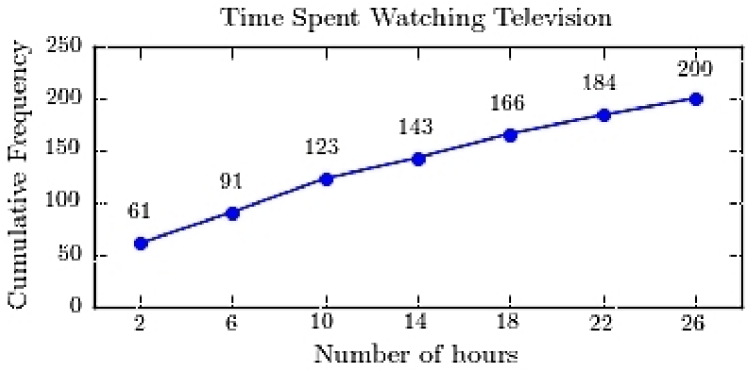
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	61
4.0-7.9	30
8.0-11.9	32
12.0-15.9	20
16.0-19.9	23
20.0-23.9	18
24.0-27.9	16

Construct a frequency ogive for the frequency distribution.

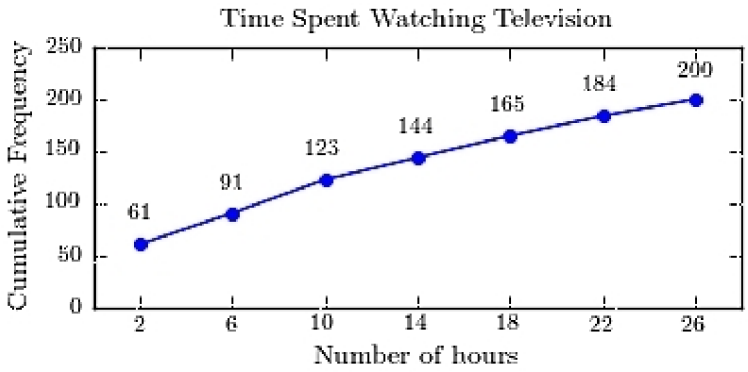
A)



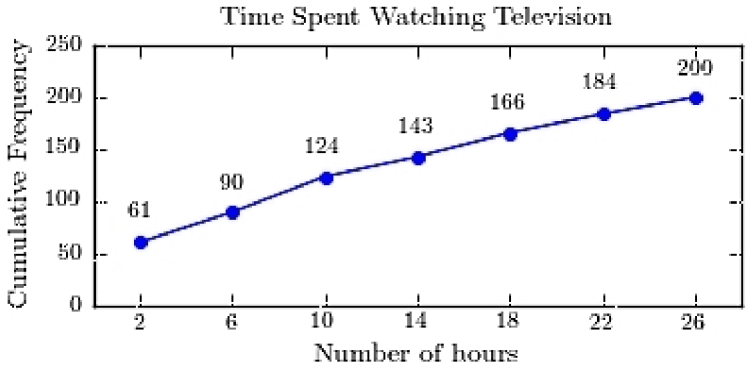
B)



C)



D)

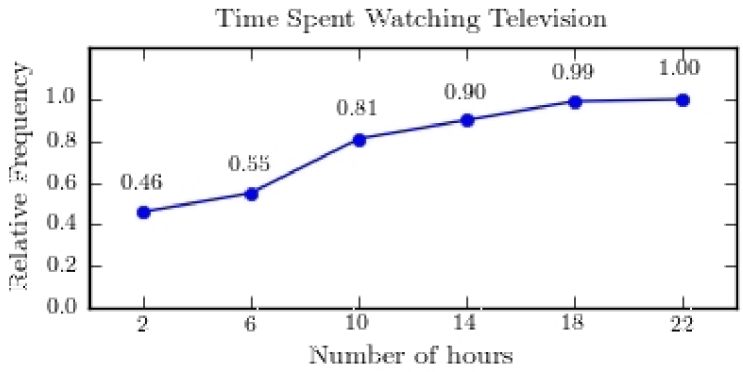


61) A sample of 200 high school students were asked how many hours per week they spend watching television.The following frequency distribution presents the results. 61) _____

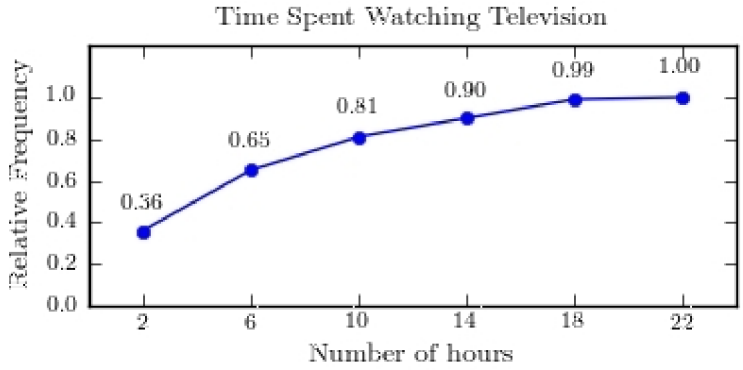
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	71
4.0-7.9	59
8.0-11.9	32
12.0-15.9	18
16.0-19.9	18
20.0-23.9	2

Construct a relative frequency ogive for the frequency distribution.

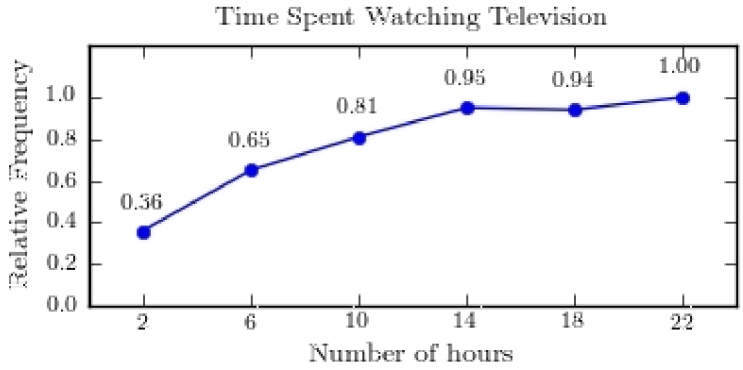
A)


Time Spent Watching Television
Relative Frequency
0.0
0.2
0.4
0.6
0.8
1.0
0.46
0.55
0.81
0.90
0.99
1.00
2
6
10
14
18
22
Number of hours

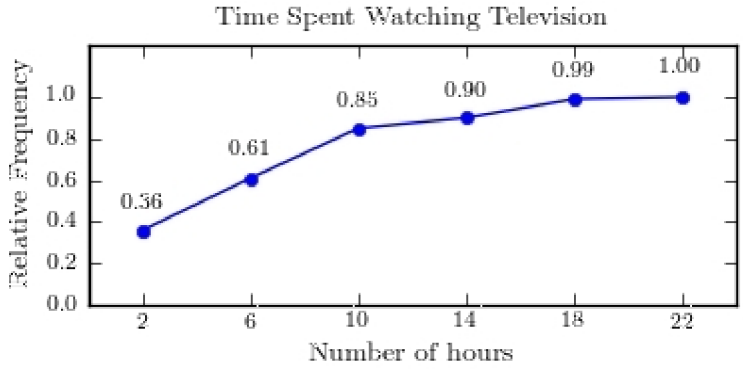
B)


Time Spent Watching Television
Relative Frequency
0.0
0.2
0.4
0.6
0.8
1.0
0.36
0.65
0.81
0.90
0.99
1.00
2
6
10
14
18
22
Number of hours

C)


Time Spent Watching Television
Relative Frequency
0.0
0.2
0.4
0.6
0.8
1.0
0.36
0.65
0.81
0.95
0.94
1.00
2
6
10
14
18
22
Number of hours

D)

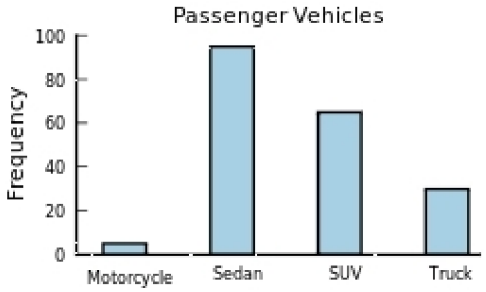

Time Spent Watching Television
Relative Frequency
0.0
0.2
0.4
0.6
0.8
1.0
0.36
0.61
0.85
0.90
0.99
1.00
2
6
10
14
18
22
Number of hours

62) The following frequency distribution presents the frequency of passenger vehicles that pass through a certain intersection from 8:00 AM to 9:00 AM on a particular day. 62) _____

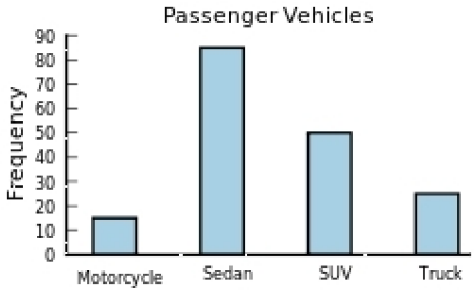
Vehicle Type	Frequency
Motorcycle	5
Sedan	95
SUV	65
Truck	30

Construct a frequency bar graph for the data.

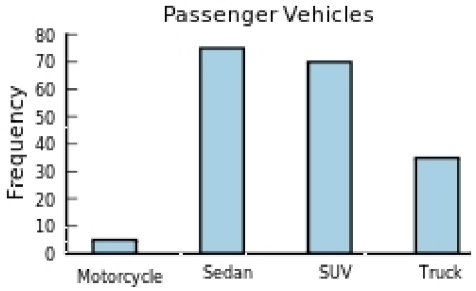
A)



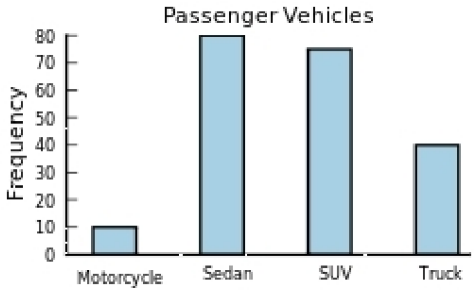
B)



C)

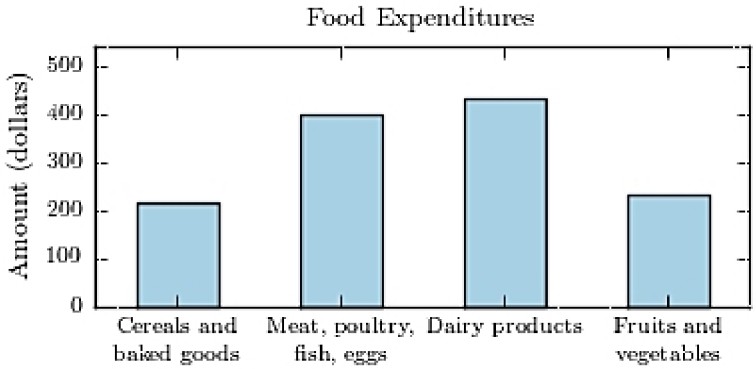


D)



63) The following bar graph presents the average amount a certain family spent, in dollars, on various food categories in a recent year. 63) _____

On which food category was the most money spent?



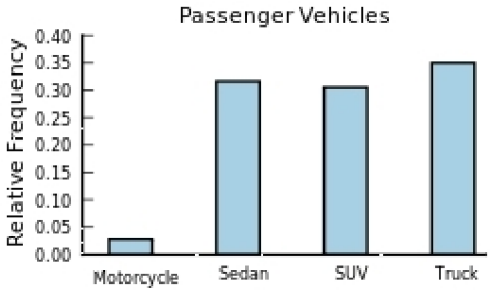
A) Dairy products
B) Fruits and vegetables
C) Meat poultry, fish, eggs
D) Cereals and baked goods

64) The following frequency distribution presents the frequency of passenger vehicles that pass through a certain intersection from 8:00 AM to 9:00 AM on a particular day. 64) _____

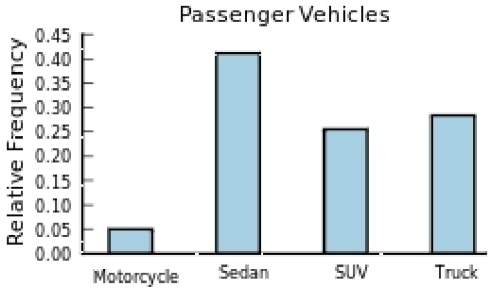
Vehicle Type	Frequency
Motorcycle	9
Sedan	54
SUV	27
Truck	53

Construct a relative frequency bar graph for the data.

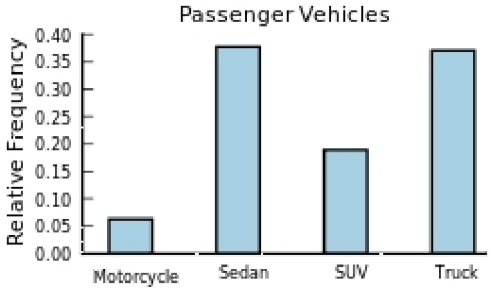
A)


Passenger Vehicles
Relative Frequency
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Motorcycle
Sedan
SUV
Truck

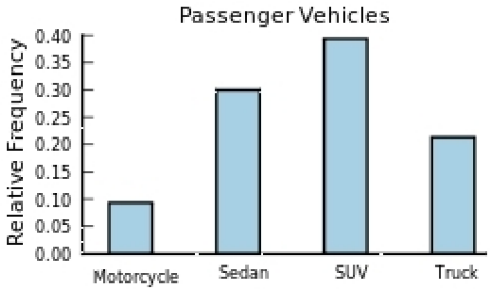
B)


Passenger Vehicles
Relative Frequency
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Motorcycle
Sedan
SUV
Truck

C)


Passenger Vehicles
Relative Frequency
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Motorcycle
Sedan
SUV
Truck

D)

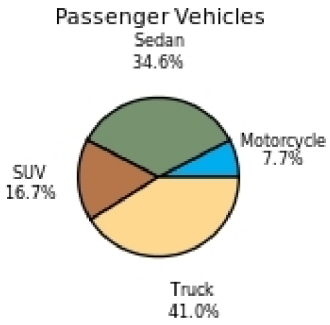

Passenger Vehicles
Relative Frequency
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Motorcycle
Sedan
SUV
Truck

65) The following frequency distribution presents the frequency of passenger vehicles that pass through a certain intersection from 8:00 AM to 9:00 AM on a particular day. 65) _____

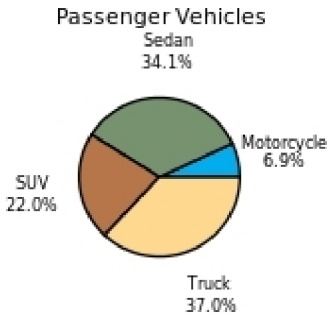
Vehicle Type	Frequency
Motorcycle	9
Sedan	20
SUV	25
Truck	39

Construct a pie chart for the data.

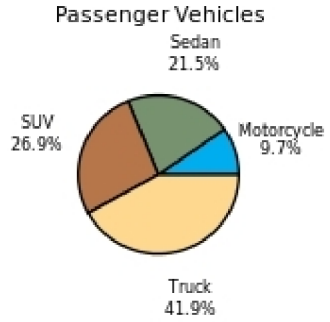
A)



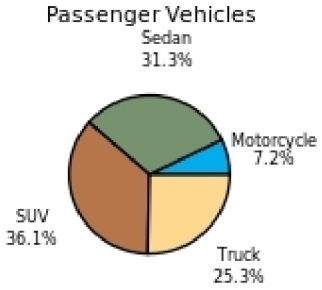
B)



C)

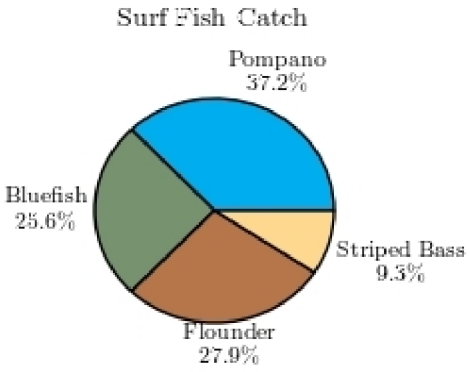


D)

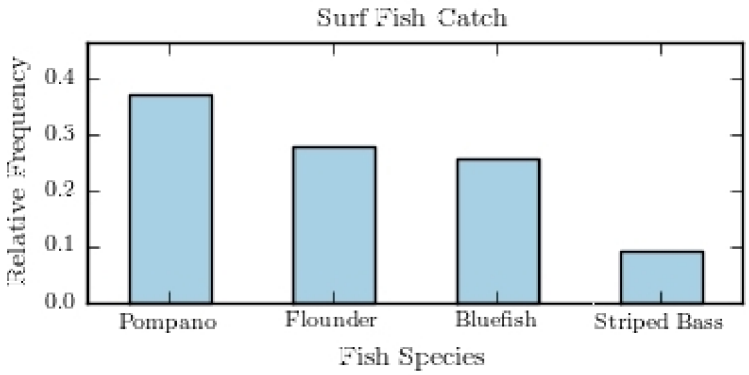


66) The following pie chart presents the percentages of fish caught in each of four ratings categories. 66) _____

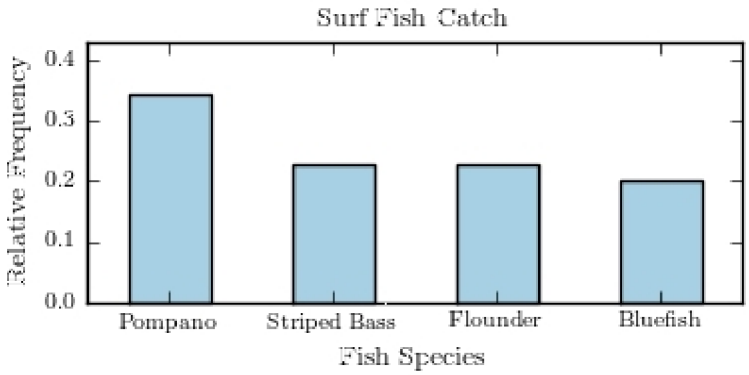
Match this pie chart with its corresponding Parato chart.


Surf Fish Catch
Pompano
37.2%
Bluefish
25.6%
Striped Bass
9.3%
Flounder
27.9%

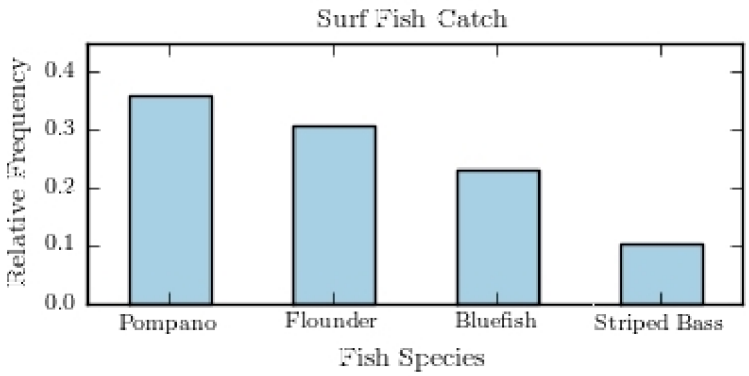
A)


Surf Fish Catch
Relative Frequency
0.0
0.1
0.2
0.3
0.4
Pompano
Flounder
Bluefish
Striped Bass
Fish Species

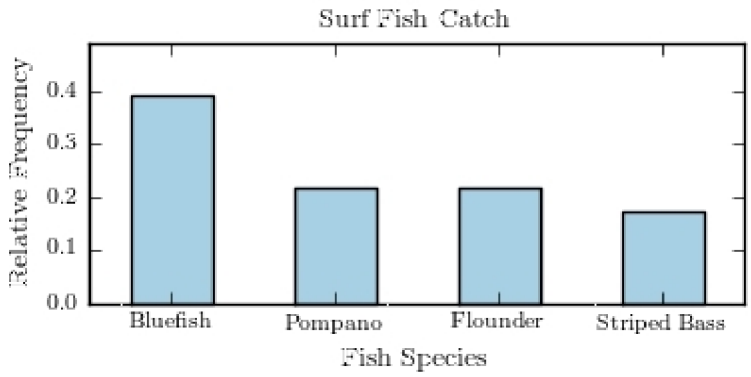
B)


Surf Fish Catch
Relative Frequency
0.0
0.1
0.2
0.3
0.4
Pompano
Striped Bass
Flounder
Bluefish
Fish Species

C)


Surf Fish Catch
Relative Frequency
0.0
0.1
0.2
0.3
0.4
Pompano
Flounder
Bluefish
Striped Bass
Fish Species

D)



SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

67) Construct a Pareto chart for the following distribution: 67) _____

Year in School	Number of Students
Freshmen	28
Sophomores	14
Juniors	40
Seniors	18

68) Construct a Pareto chart for the following distribution: 68) _____

Major	Number of Students
Business	49
Science	15
Engineering	41
Social Sciences	8
Liberal Arts	33
Education	22

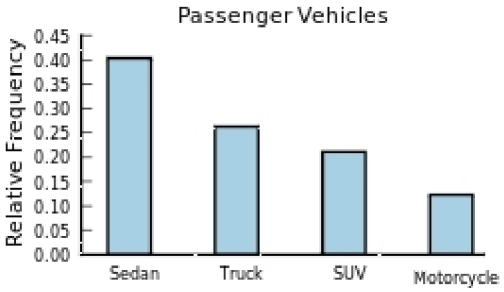
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

69) The following frequency distribution presents the frequency of passenger vehicles that pass through a certain intersection from 8:00 AM to 9:00 AM on a particular day. 69) _____

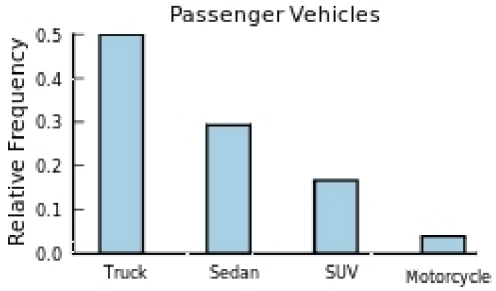
Vehicle Type	Frequency
Motorcycle	14
Sedan	46
SUV	24
Truck	30

Construct a relative frequency Parato chart for the data.

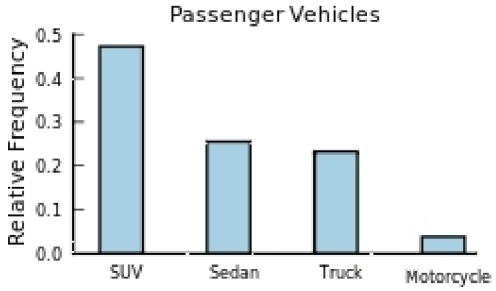
A)


Passenger Vehicles
Relative Frequency
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Sedan
Truck
SUV
Motorcycle

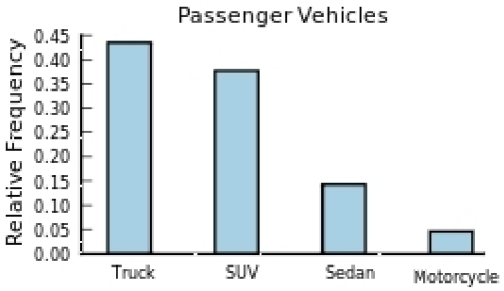
B)


Passenger Vehicles
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
Truck
Sedan
SUV
Motorcycle

C)


Passenger Vehicles
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
SUV
Sedan
Truck
Motorcycle

D)


Passenger Vehicles
Relative Frequency
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Truck
SUV
Sedan
Motorcycle

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

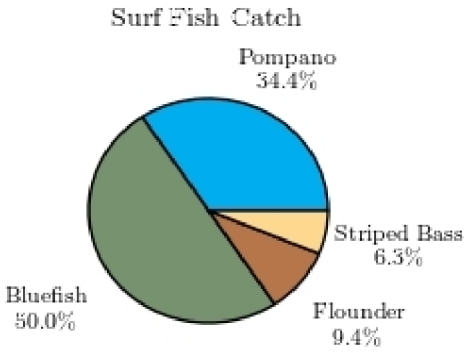
70) A local fundraiser wants to graphically display the contributions he has received over the past five years. Construct a time series graph for the following data. 70) _____

Year	Contributions
1996	$550
1997	$700
1998	$800
1999	$1050
2000	$1200

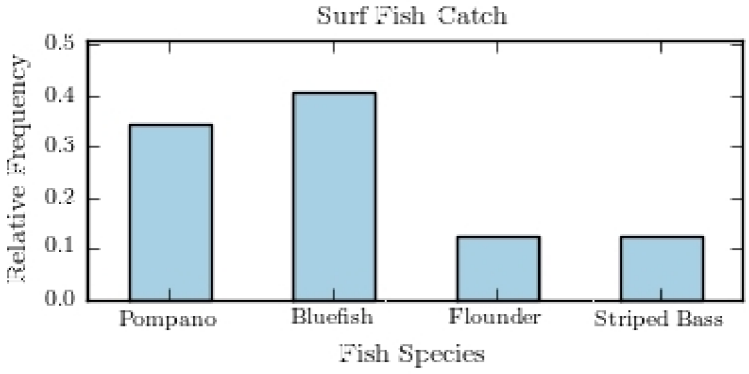
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

71) The following pie chart presents the percentages of fish caught in each of four ratings categories. 71) _____

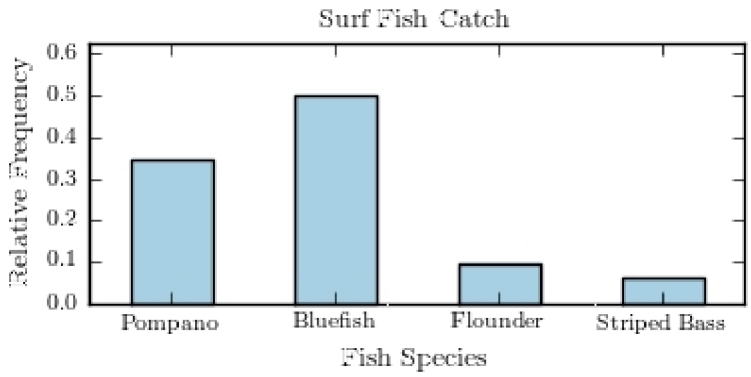
Match this pie chart with its corresponding bar graph.



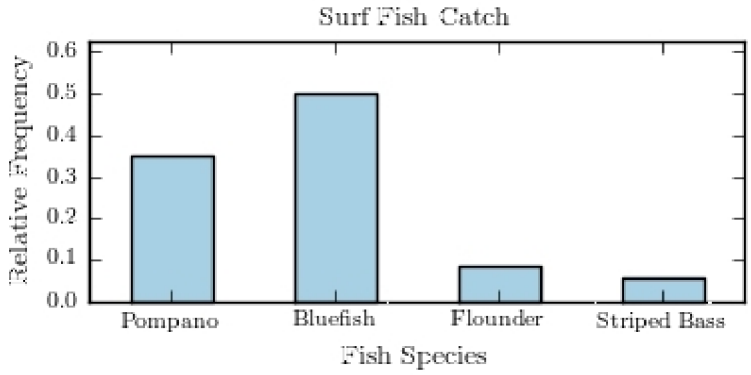
A)



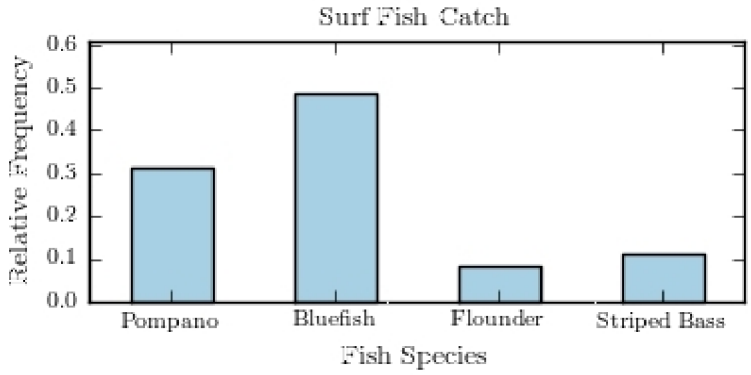
B)


Surf Fish Catch
Relative Frequency
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Pompano
Bluefish
Flounder
Striped Bass
Fish Species

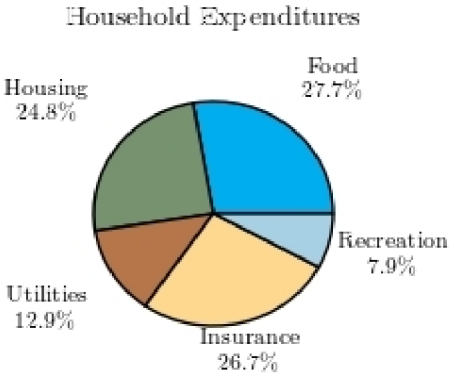
C)


Surf Fish Catch
Relative Frequency
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Pompano
Bluefish
Flounder
Striped Bass
Fish Species

D)


Surf Fish Catch
Relative Frequency
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Pompano
Bluefish
Flounder
Striped Bass
Fish Species

72) Following is a pie chart that presents the percentages spent by a certain household on its five largest annual expenditures. What percentage of the money spent was spent on food, housing, and utilities? 72) _____



A) 65.4% B) 52.5% C) 47% D) 60.4%

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

73) The following information shows the colors of cars preferred by customers. Draw a pie graph and indicate how many degrees that black represents in a pie graph?

Color	**Number**
Red	50
Black	60
White	30
Green	20
Blue	40

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

74) Construct a pie chart for the following distribution: 74) _____

Year in School	**Number of Students**
Freshmen	28
Sophomores	14
Juniors	40
Seniors	18

75) Construct a pie chart for the following distribution: 75) _____

Major	Number of Students
Business	128
Science	36
Engineering	60
Social Sciences	40
Liberal Arts	88
Education	48

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

76) Karen is constructing a pie graph to represent the number of hours her classmates do homework each day. She found that 8 of 24 classmates did homework for three hours each day. In her pie graph, this would represent how many degrees? 76) _____

A) 240° B) 120° C) 135° D) 45°

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

77) Construct a pie graph using the following data from a local bakery. 77) _____

Cookie Types	Number Sold
Chocolate Chip	20
Peanut Butter	15
Oatmeal	30
Sugar	10

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

78) A weatherman records the amount of rain that fell in Portland, Oregon each day for a year. What type of graph should he use to show how rainfall changes during the year? 78) _____

A) pictograph B) pie graph
C) time series graph D) Pareto chart

79) A time series graph represents data that occur over a specific time period. 79) _____

A) True B) False

80) A Pareto chart does <u>not</u> have which of the following properties? 80) _____

A) frequencies displayed by the heights of vertical bars
B) frequencies arranged from highest to lowest
C) classes of data are categorical
D) quantitative variable on the horizontal axis

81) A pie graph is <u>not</u> useful in showing which of the following characteristics of a data set? 81) _____
A) frequency changes over time
B) categories that make up the smallest proportions of the total
C) relative frequencies for each category in the distribution
D) categories that make up the largest proportions of the total

82) A time series graph is useful for which of the following purposes? 82) _____
A) representing the cumulative frequencies of the data at a specific time
B) representing relative frequencies of categories at a specific time
C) representing the frequencies of the data, sorted from largest to smallest
D) representing the changing frequencies of a data category over a period time

83) A time series graph is useful for detecting trends that occur over the period of time. 83) _____
A) False B) True

84) Which graph should be used to represent the frequencies with which certain courses are taken at Highlands Middle School? 84) _____
A) time series graph B) Pareto chart
C) pie graph D) pictograph

85) A pie graph would best represent the number of inches of rain that has fallen in Ohio each day for the past 2 months. 85) _____
A) False B) True

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

86) The percentages of white, wheat, and rye bread sold at a supermarket each week is best shown using a _____ graph. 86) _____

87) A _____ graph would most appropriately represent the number of students that were enrolled in Statistics for each of the past ten years. 87) _____

88) The scores on a recent statistics exam are shown below. Construct a stem and leaf plot for the data. 88) _____
98, 73, 64, 69, 86, 89, 77, 86, 91, 73

89) Given the following two sets of data, draw a back-to-back stem and leaf plot. 89) _____
A - 12, 22, 22, 24, 34, 31, 26, 35, 27, 39, 49, 10
B - 45, 36, 23, 16, 37, 28, 18, 13, 10, 23, 30, 31

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

90) Construct a stem-and-leaf plot for the following data. 90) _____

28	47	19	39	30	54	48	21	58	52
36	36	53	63	29	24	43	30	30	46

A)

1	9
2	1489
3	000669
4	3678
5	2348
6	3

B)

1	9
2	1489
3	00066
4	36789
5	2348
6	3

C)

1	9
2	1489
3	000669
4	3678
5	248
6	33

D)

1	9
2	1489
3	00669
4	03678
5	2348
6	3

91) Construct a stem-and-leaf plot for the following data, in which the leaf represents the tenths place. 91) _____

7.0	7.4	10.4	10.9	9.7	9.3	7.3	8.7	7.1	5.4	6.6	9.3
9.8	8.9	9.3	7.7	8.4	8.7	8.8	7.3	2.4	2.5	9.6	8.8

A)

1	5
2	
3	4
4	
5	4
6	6
7	013347
8	477889
9	333678
10	49

B)

2	45
3	
4	
5	4
6	36
7	0147
8	3477889
9	333678
10	49

C)

2	45
3	
4	
5	4
6	6
7	013347
8	477889
9	333678
10	49

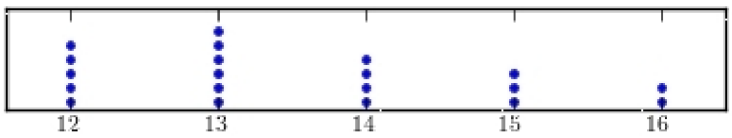
D)

2	45
3	
4	
5	4
6	6
7	01334
8	34777889
9	33678
10	49

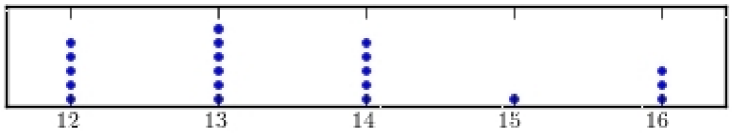
92) Construct a dotplot for the following data. 92) _____

16	13	14	12	15	13	14	14	12	12
14	13	13	14	12	13	15	14	12	16

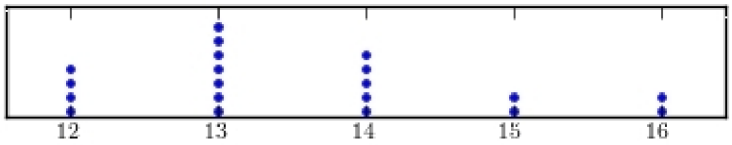
A)



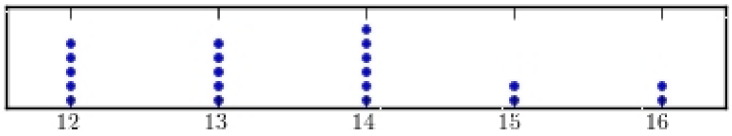
B)



C)



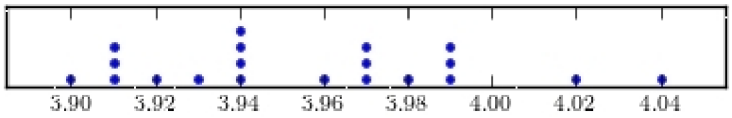
D)



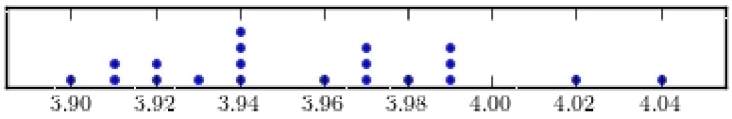
93) Construct a dotplot for the following data. 93) _____

3.99	4.02	3.97	3.94	3.94	3.92	3.91	3.91	3.97	4.04
3.98	3.94	3.96	3.97	3.94	3.99	3.93	3.90	3.97	3.99

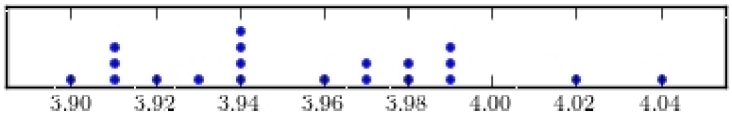
A)



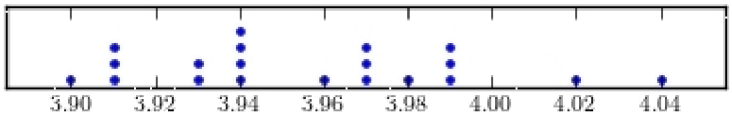
B)



C)



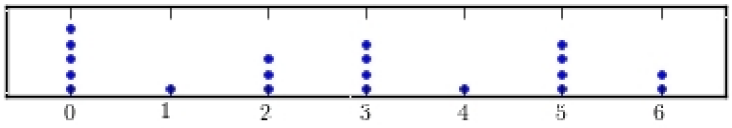
D)



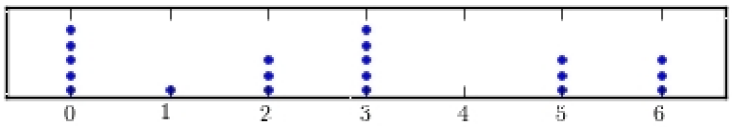
94) Following are the numbers of Dean's List students in a random sample of 20 university courses. Construct a dotplot for these data. 94) _____

0	1	0	3	3
2	5	5	0	2
3	5	6	0	3
4	5	2	6	0

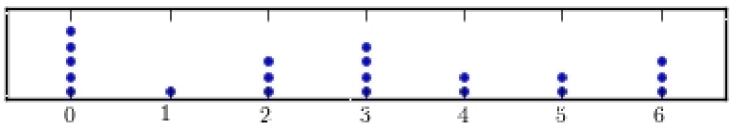
A)



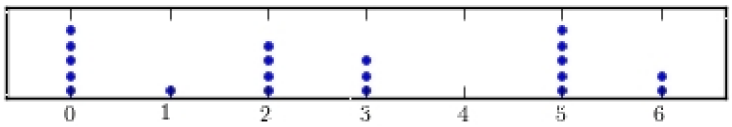
B)



C)

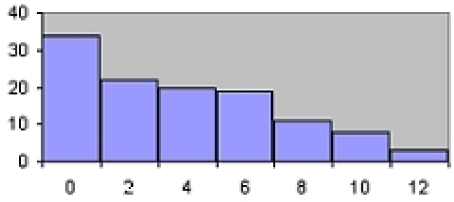


D)

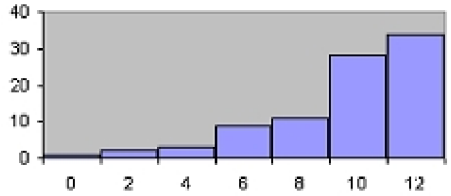


95) Which of the following is a Pareto chart? 95) _____

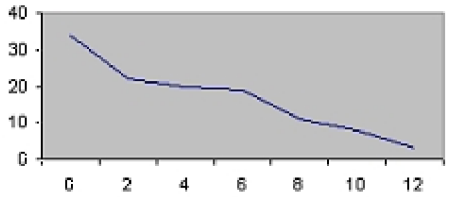
A)



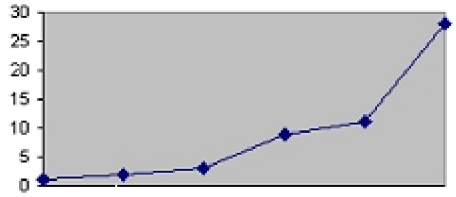
B)



C)



D)



96) A stem and leaf plot has the advantage over a grouped frequency distribution of retaining the actual data while still showing them in graphical form. 96) _____

A) False B) True

97) An automobile dealer wants to construct a pie graph to represent types of cars sold in July. He sold 72 cars, 16 of which were convertibles. How many degrees should be used for the convertibles section ? 97) _____

A) 80° B) 100° C) 60° D) 50°

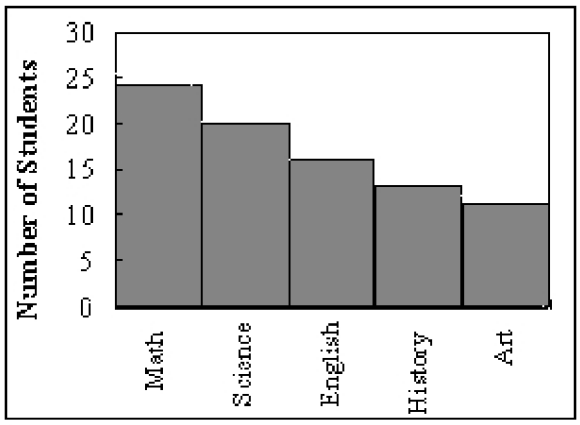
98) If a data set showing types of pizza ordered at a particular restaurant indicates 24 out of 72 orders were for pepperoni pizza, how many degrees would be needed to represent pepperoni pizza in a pie chart? 98) _____

A) 150° B) 90° C) 60° D) 120°

99) A Pareto chart is useful for showing percentages of the total at different times. 99) _____

A) False B) True

100) What type of graph is the figure below? 100) _____



A) Pareto chart B) ogive C) pie graph D) pictograph

101) Graphs give a visual representation that may enable readers to analyze and interpret data more easily than simply looking at tables of numbers. 101) _____

A) False B) True

102) When making Pareto charts, data should be arranged _____ according to frequency. 102) _____

A) with increasing time B) from smallest to largest

C) clockwise D) from largest to smallest

103) A Pareto chart arranges data from largest to smallest according to frequencies. 103) _____

A) True B) False

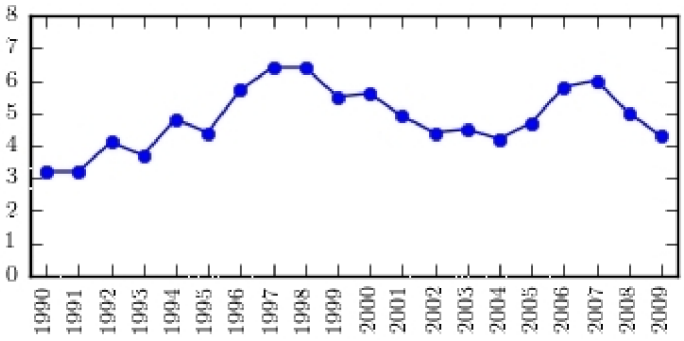
104) When two sets of data collected over specific periods of time are compared on the same graph using two lines, it is called a compound time series graph. 104) _____

A) False B) True

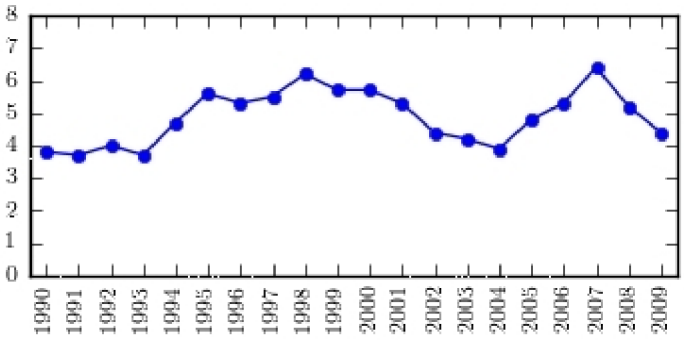
105) The following table presents the rate of population growth of a suburb of Atlanta, Georgia for each of the years 1990 through 2009. Construct a time-series plot of the growth rate. 105) _____

Year	Percent Growth	Year	Percent Growth
1990	3.1	2000	5.5
1991	3.3	2001	5.2
1992	4.3	2002	4.4
1993	3.5	2003	4.2
1994	4.4	2004	4.1
1995	5.7	2005	4.7
1996	5.2	2006	5.9
1997	6.4	2007	6.2
1998	5.6	2008	5.2
1999	5.8	2009	4.6

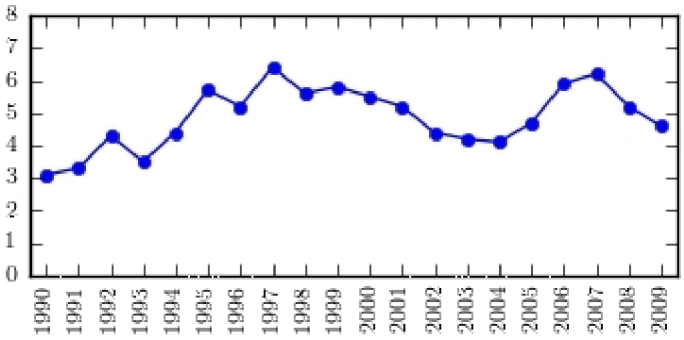
A)



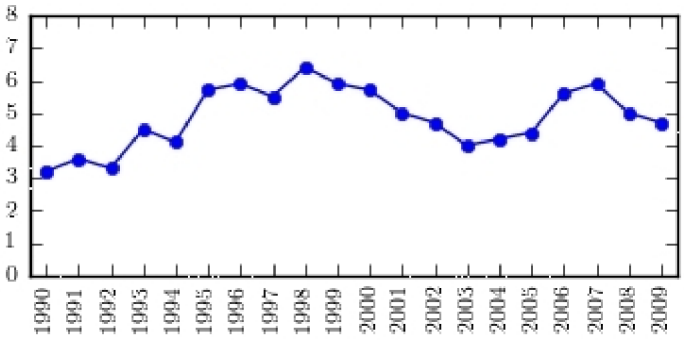
B)



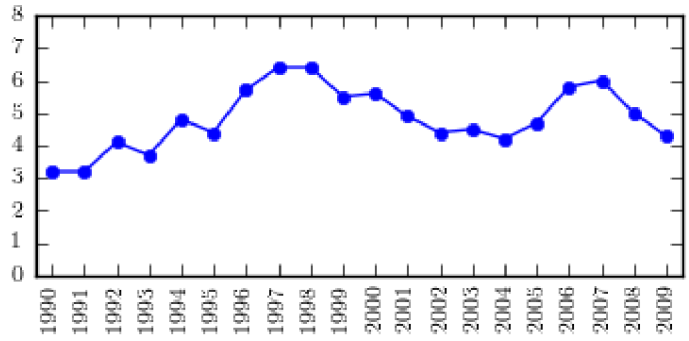
C)



D)

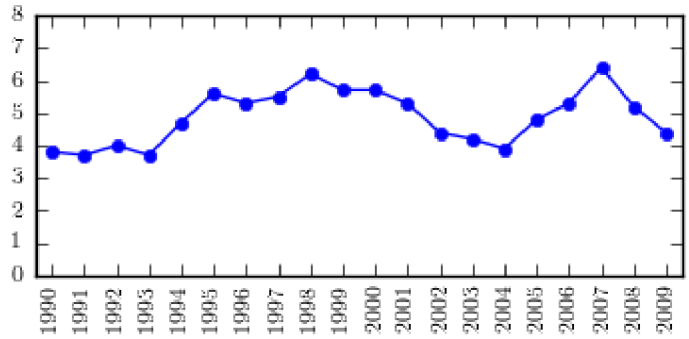


106) The following time-series plot presents the population growth (in percent) of a suburb of Atlanta, Georgia for each of the years 1990 through 2009. Estimate the rate of growth in 2007. 106) _____



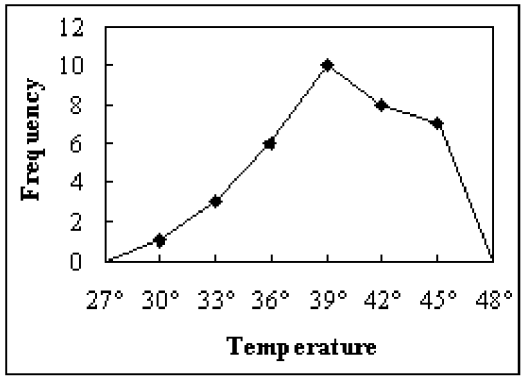
A) 4.9% B) 6.0% C) 6.6% D) 7.0%

107) The following time-series plot presents the population growth (in percent) of a suburb of Atlanta, Georgia for each of the years 1990 through 2009. Estimate the amount by which the rate of growth changed from 1993 to 1995. 107) _____



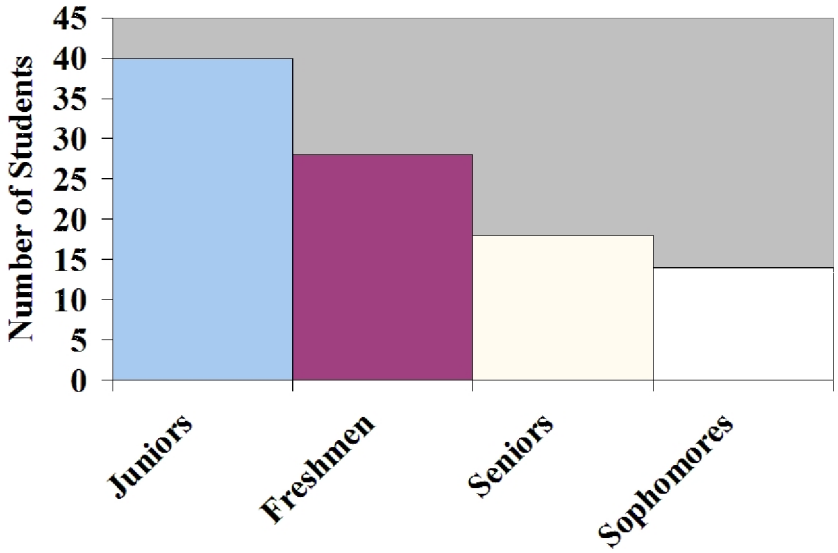
A) about 1.4 percentage points
B) about 3.0 percentage points
C) about 2.9 percentage points
D) about 2.1 percentage points

1) A
2) A
3) raw data
4) frequency
5) 15
6) C
7) A
8) C
9) B
10) B
11) A
12) B
13) C
14) C
15) A
16) class midpoint
17) A
18) B
19) A
20) A
21) A
22) grouped
23) B
24) B
25) C
26) D
27)

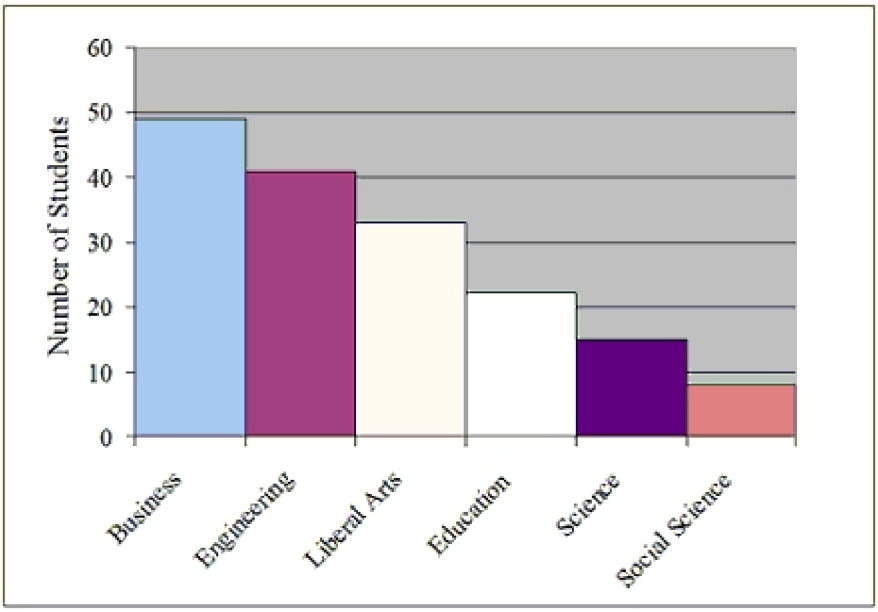


28) B
29) D
30) A
31) D
32) B
33) frequency polygon
34) A
35) B
36) A
37) A

38) B
39) D
40) A
41) C
42) B
43) A
44) B
45) B
46) D
47) right-skewed
48) B
49) B
50) C
51) D
52) C
53) B
54) C
55) C
56) D
57) B
58) C
59) C
60) B
61) B
62) A
63) A
64) C
65) C
66) A
67)

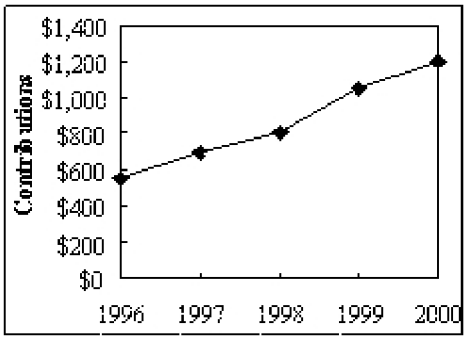


68)



69) A

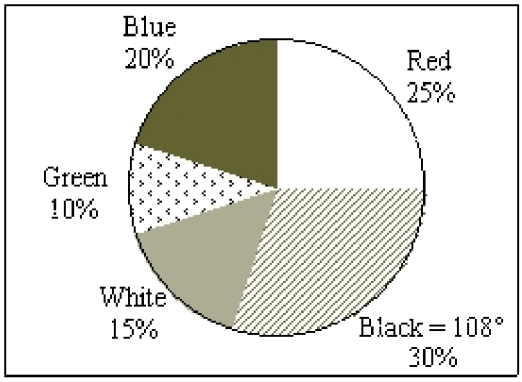
70)



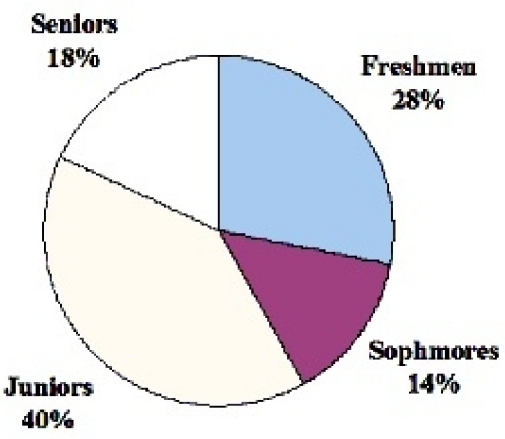
71) B

72) A

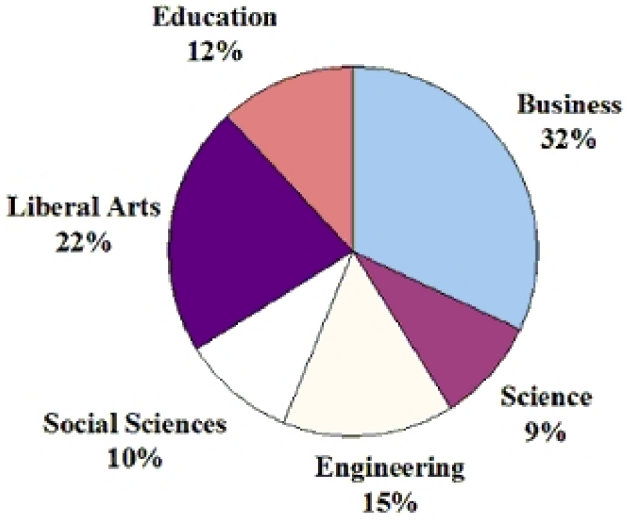
73)



74)

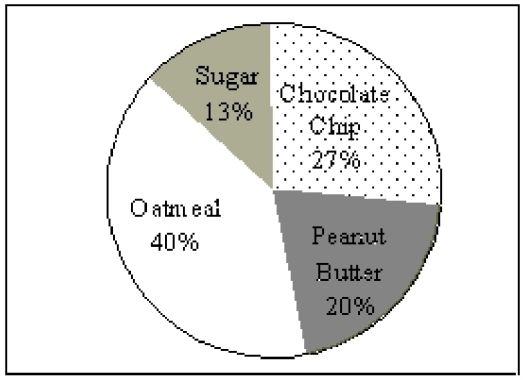

Seniors
18%
Freshmen
28%
Sophmores
14%
Juniors
40%

75)


Education
12%
Business
32%
Liberal Arts
22%
Science
9%
Social Sciences
10%
Engineering
15%

76) B

77)



78) C
79) A
80) D
81) A
82) D
83) B
84) B
85) A
86) pie
87) time series
88)

6	4 9
7	3 3 7
8	6 6 9
9	1 8

89)

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

90) A
91) C
92) D
93) A
94) A
95) A
96) B
97) A
98) D
99) A
100) A
101) B
102) D
103) A
104) B
105) C

106) B
107) D