Exam

Name_____

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) select the number of classes desired
   B) use classes that are mutually exclusive
   C) make the class width an even number
   D) find the range

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

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) 10 B) 11 C) 80 D) 9

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

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

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

10) What is the midpoint of the class 6-10? 10) _____
A) 8 B) 5 C) 4 D) 8.5

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) cumulative B) ungrouped C) categorical D) grouped

12) What is the lower class limit of the class 13–17? 12) _____
A) 15 B) 12.5 C) 17 D) 13

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

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

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

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

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) 10 B) 8.5 C) 8 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) grouped frequency distribution

C) upper boundary D) open-ended distribution

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

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

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

A) True B) False

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	2
61-70	5
71-80	6
81-90	7
91-100	3

B)

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

C)

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

D)

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

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) 0.058 B) 11 C) 0.138 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	0.037
Sedan	0.407
SUV	0.411
Truck	0.145

C)

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

D)

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

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

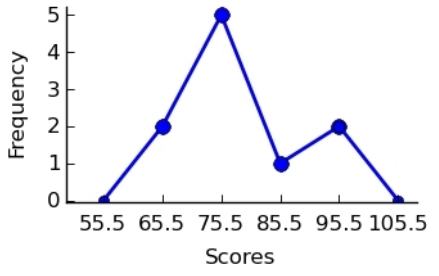
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

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

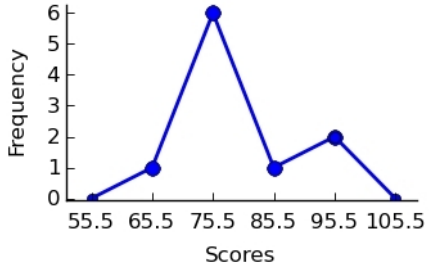
80, 99, 77, 67, 93, 71, 76, 86, 79, 71

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

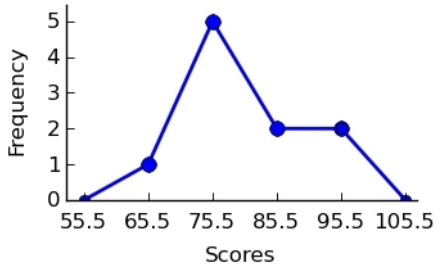
A)



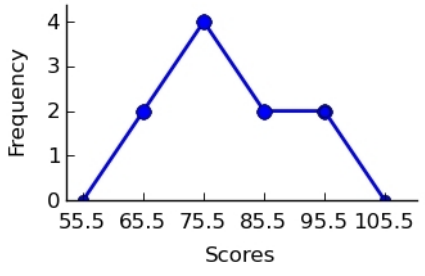
B)



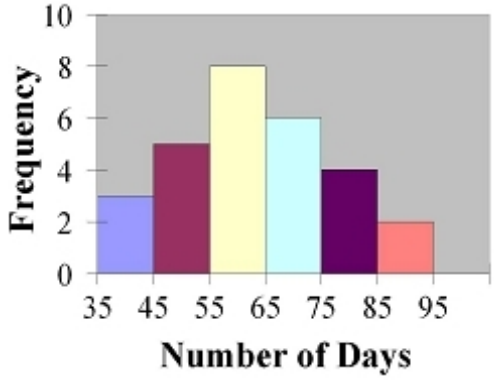
C)



D)

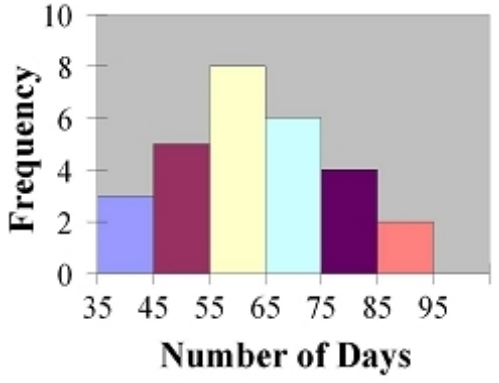


29) Find the class with the least number of data values. 29) _____



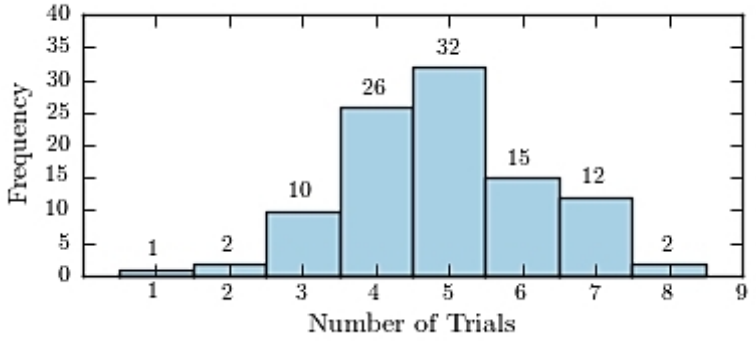
A) 75-85 B) 55-65 C) 65-75 D) 85-95

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



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

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) 14 B) 87 C) 3 D) 13

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

A) True B) False

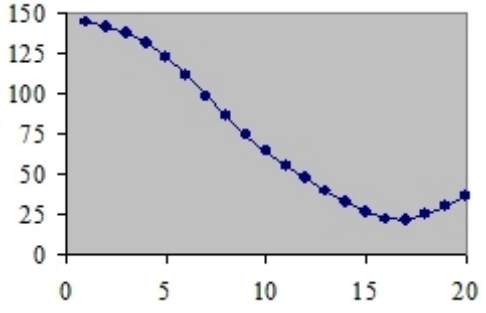
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

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

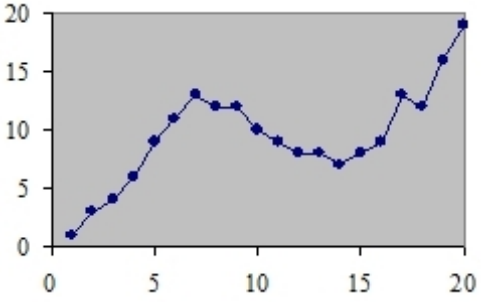
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

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

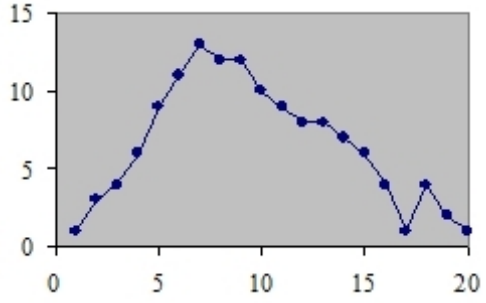
A)



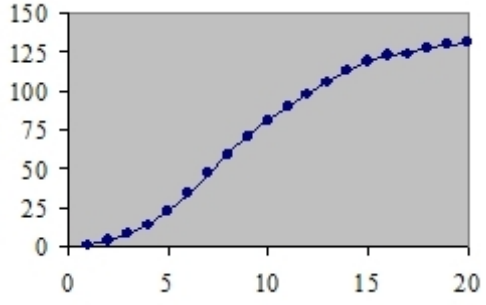
B)



C)

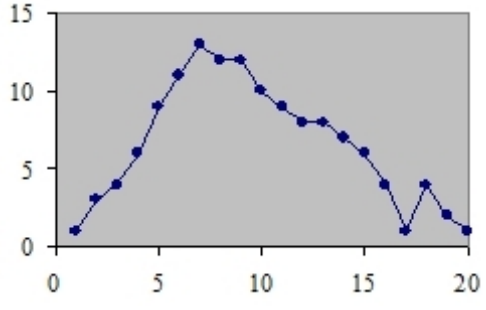


D)

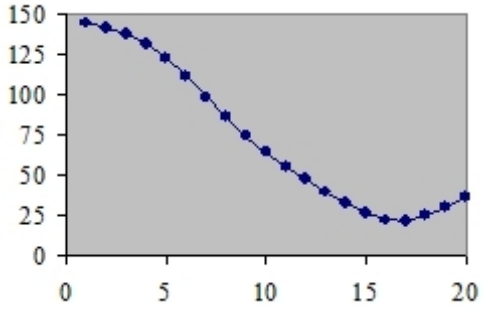


35) Which of the following could be an ogive? 35) _____

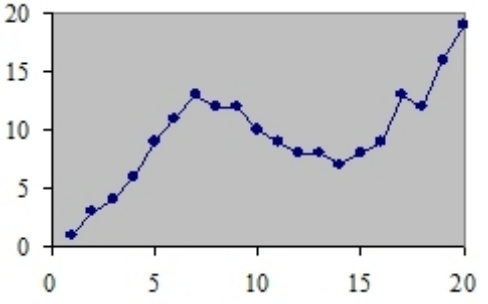
A)



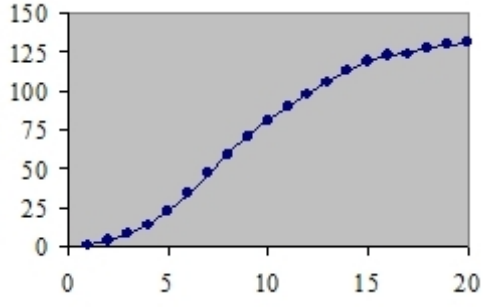
B)



C)

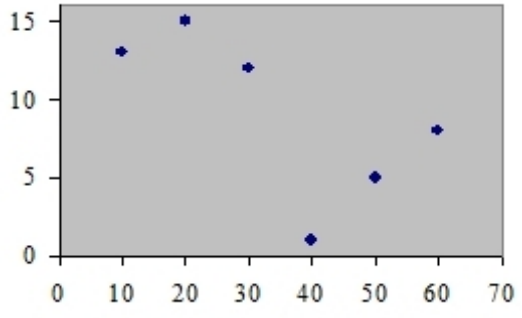


D)

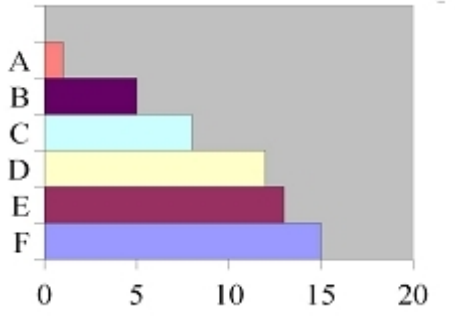


36) Which of the following is a histogram? 36) _____

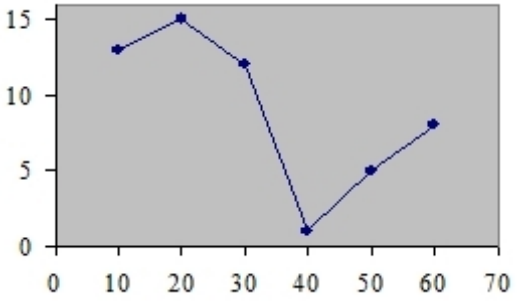
A)



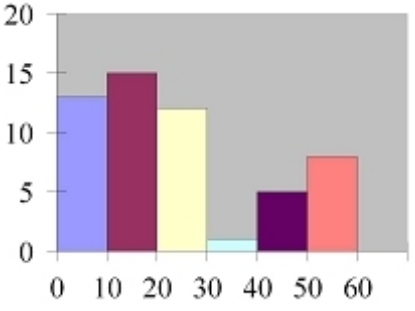
B)



C)



D)



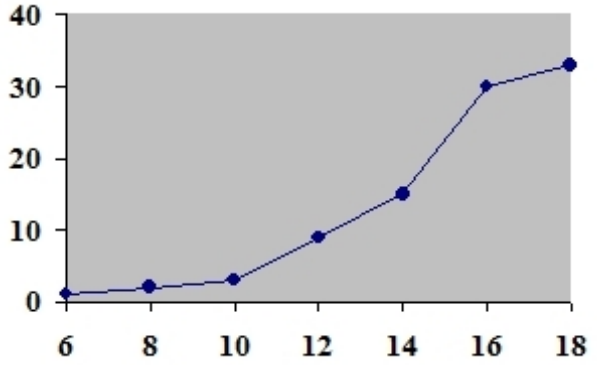
37) The frequency polygon and the histogram are two different ways to represent the same data set. 37) _____

A) False B) True

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

A) False B) True

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



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

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

A) histograms. B) relative frequency graphs.
C) ogive graphs. D) frequency polygons.

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

A) ogive B) frequency polygon
C) cumulative frequency D) histogram

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) _____

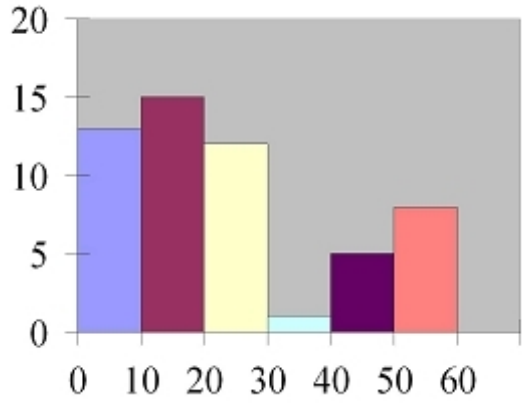
A) False B) True

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

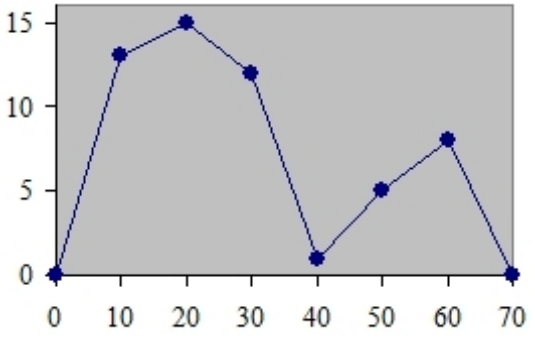
A) True B) False

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

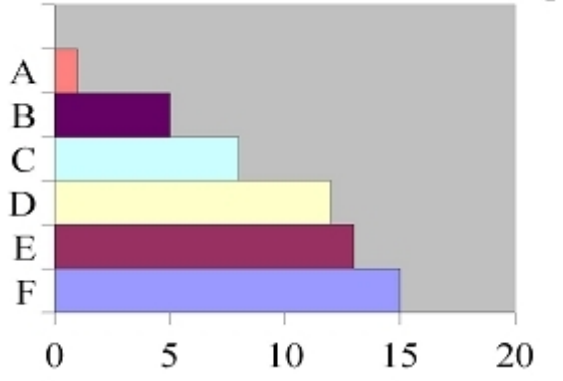
A)



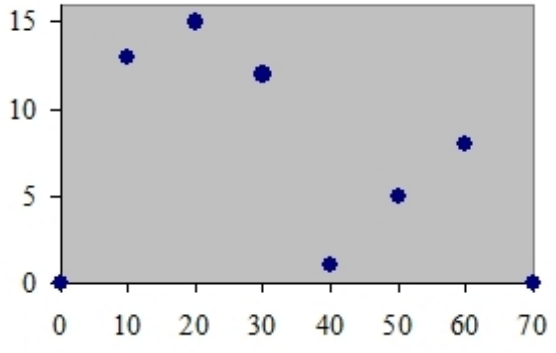
B)



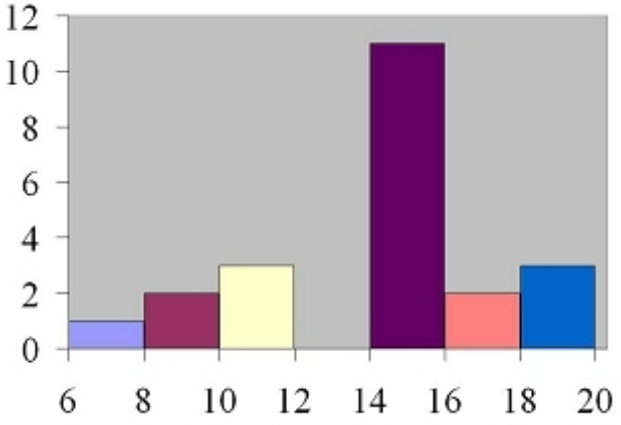
C)



D)



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



A) 72 B) 76 C) 22 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

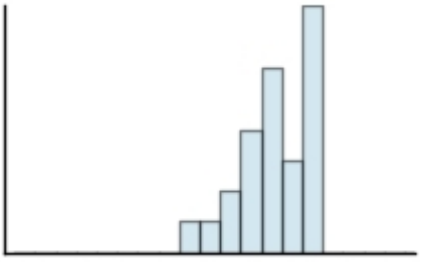
A) 12 B) 25 C) 13 D) 44

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) _____

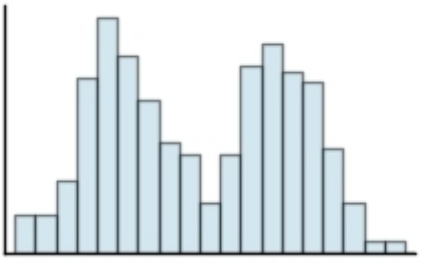
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

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



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

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



A) bimodal B) unimodal

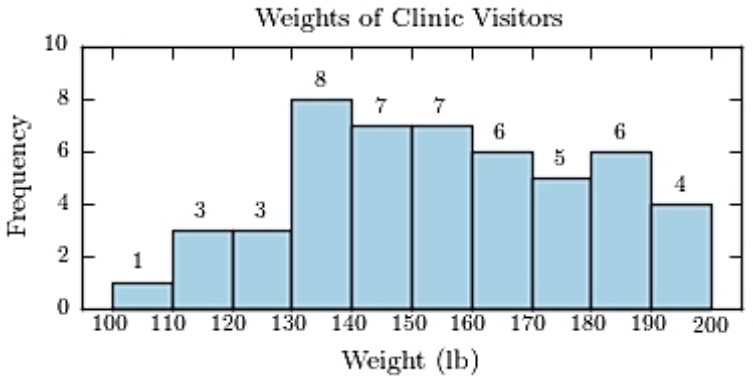
50) The following frequency distribution presents the weights in pounds (lb) of a sample of visitors to a health clinic. 50) _____

Weights of Clinic Visitors

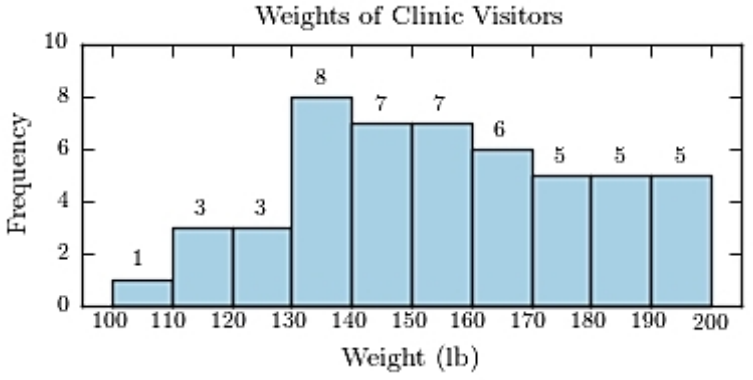
Weight (lb)	Frequency
100–109	1
110–119	3
120–129	3
130–139	8
140–149	7
150–159	7
160–169	6
170–179	5
180–189	6
190–199	4

Construct a frequency histogram.

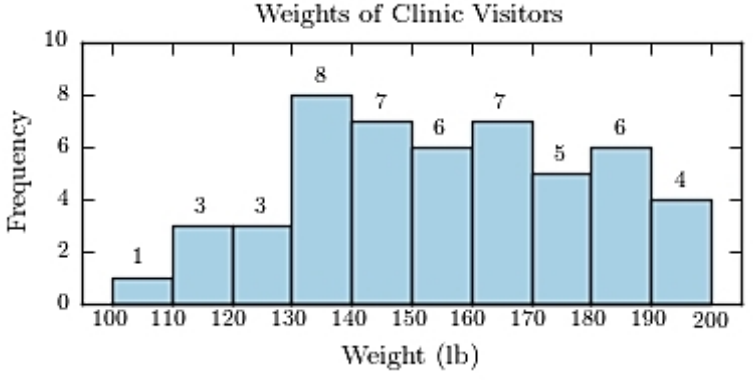
A)


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 7 6 5 6 4

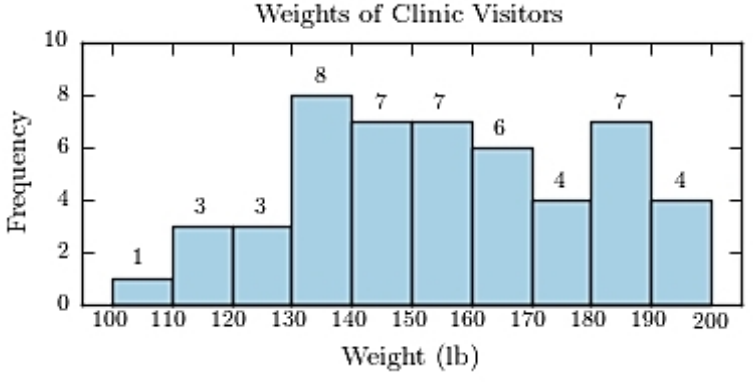
B)


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 6 7 5 6 4

D)

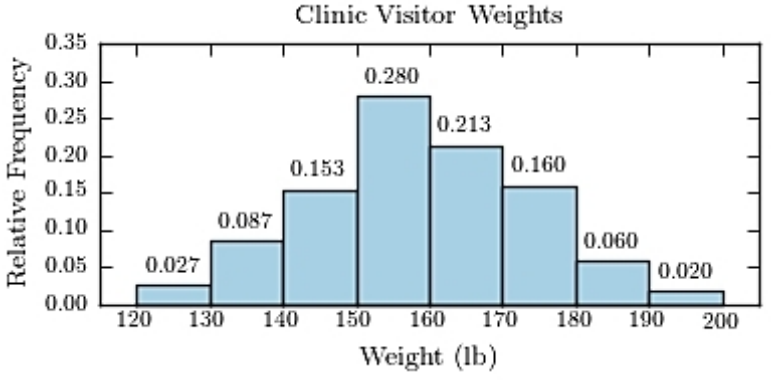

Weights of Clinic Visitors
Frequency
Weight (lb)
0 2 4 6 8 10
100 110 120 130 140 150 160 170 180 190 200
1 3 3 8 7 7 6 4 7 4

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

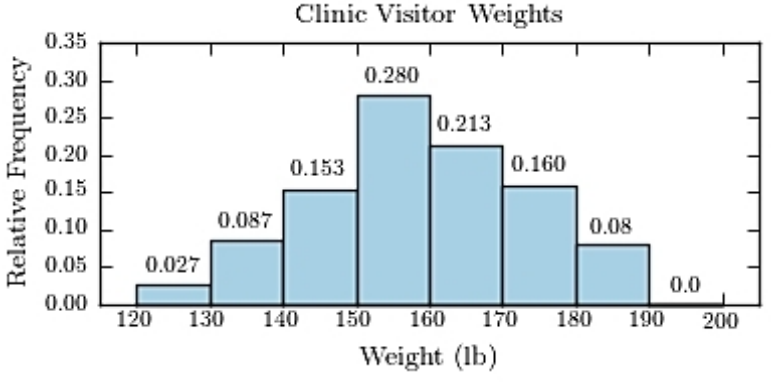
Clinic Visitor Weights	
Weight (lb)	Frequency
120-129	4
130-139	13
140-149	23
150-159	42
160-169	32
170-179	24
180-189	9
190-199	3

Construct a relative frequency histogram.

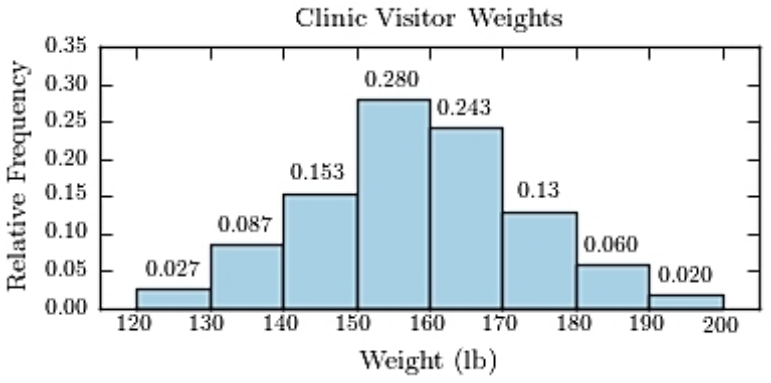
A)



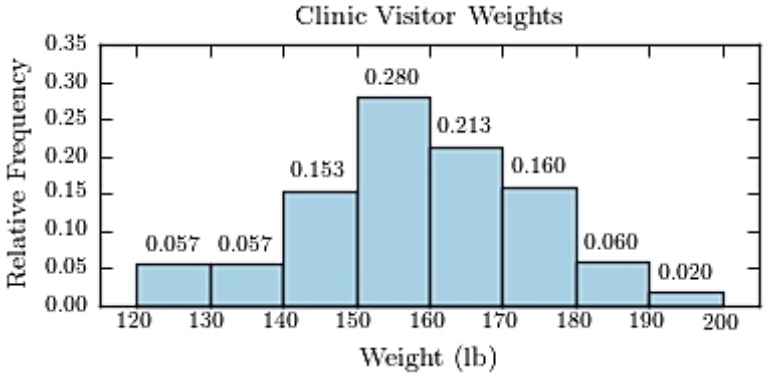
B)



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	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

B)

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

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	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

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	0.050
70.00-79.99	0.100
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	0.040
70.00-79.99	0.110
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	0.035
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

D)

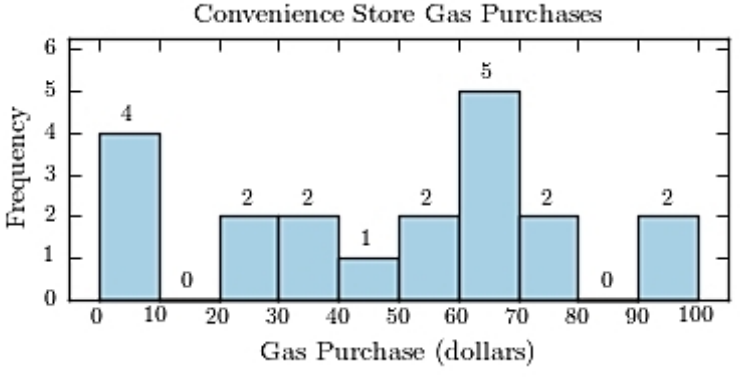
Convenience Store Gas Purchases	
Amount (dollars)	Relative Frequency
0.00-9.99	0.050
10.00-19.99	0.000
20.00-29.99	0.150
30.00-39.99	0.100
40.00-49.99	0.150
50.00-59.99	0.240
60.00-69.99	0.060
70.00-79.99	0.100
80.00-89.99	0.100
90.00-99.99	0.050

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

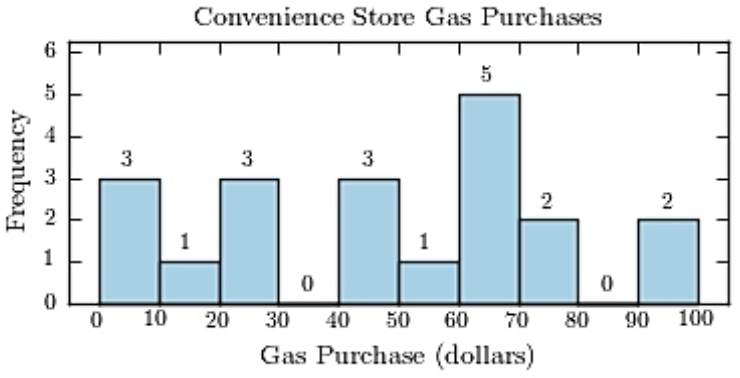
Construct a frequency histogram using a class width of 10, and using 0 as the lower class limit for the first class.

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

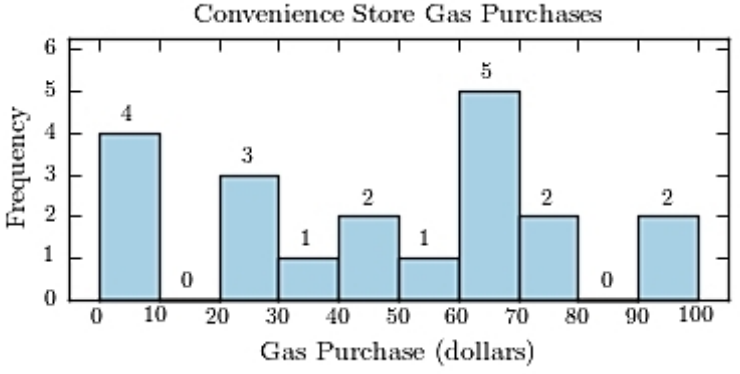
A)



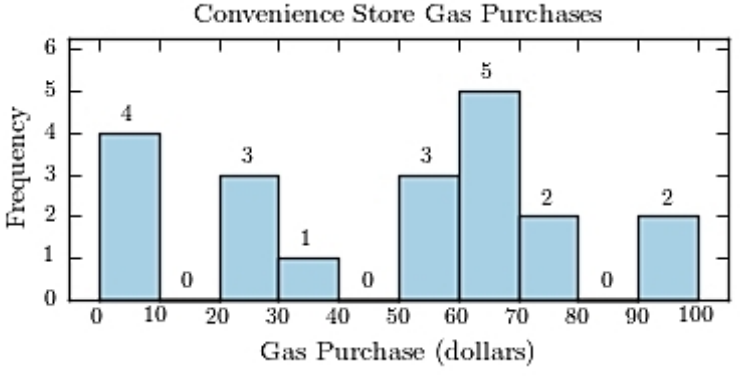
B)



C)



D)

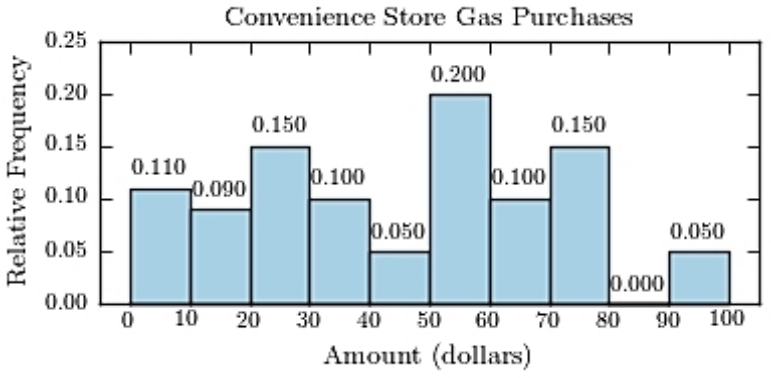


55) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 55) _____

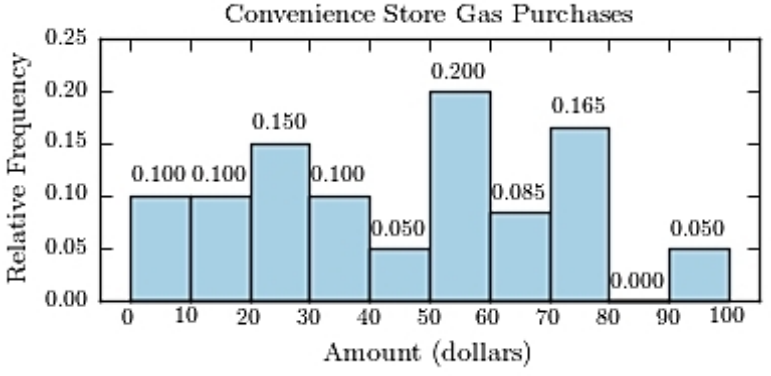
Construct a relative frequency histogram using a class width of 10, and using 0 as the lower class limit for the first class.

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

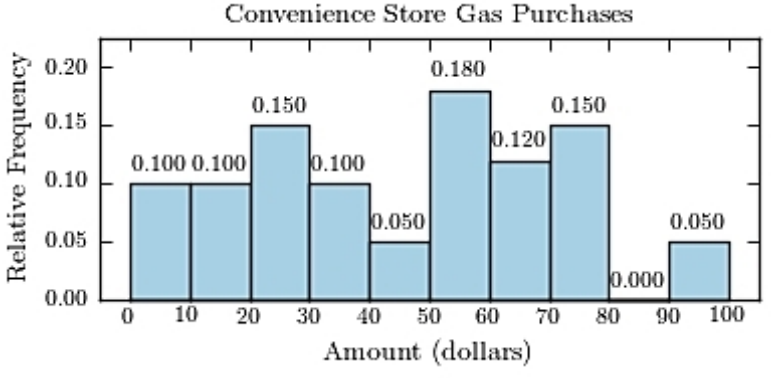
A)


Convenience Store Gas Purchases
Relative Frequency
0.25
0.20
0.15
0.10
0.05
0.00
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)

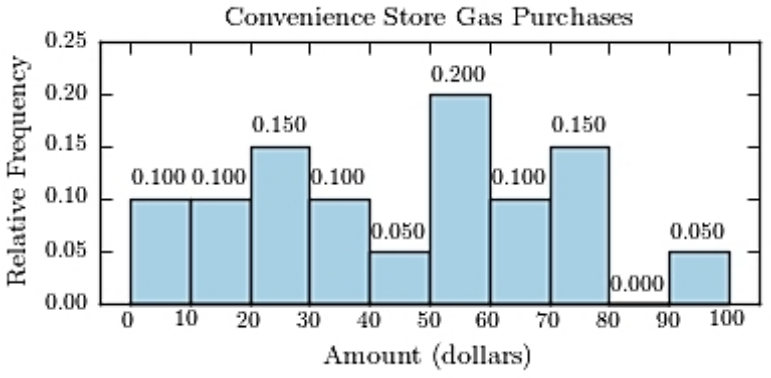
B)


Convenience Store Gas Purchases
Relative Frequency
0.25
0.20
0.15
0.10
0.05
0.00
0.100 0.100
0.150
0.100
0.050
0.200
0.085
0.165
0.000
0.050
0 10 20 30 40 50 60 70 80 90 100
Amount (dollars)

C)


Convenience Store Gas Purchases
Relative Frequency
0.20
0.15
0.10
0.05
0.00
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)

D)

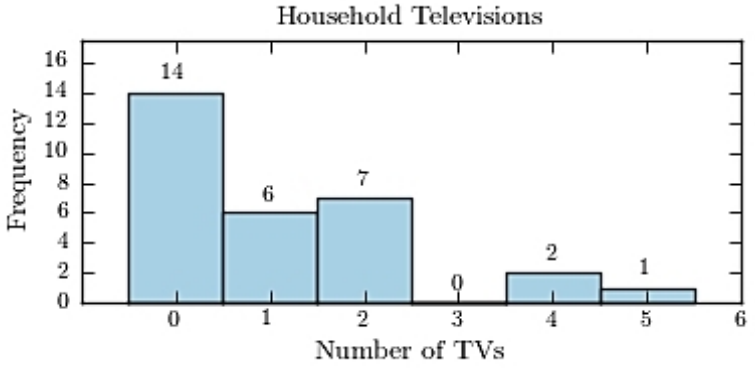


56) Thirty households were surveyed for the number of televisions in each home. Following are the results. 56) _____

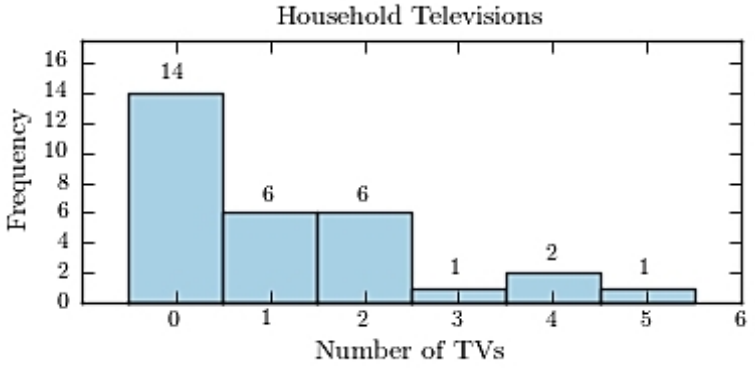
2	2	0	1	1	2	0	0	5	2
4	4	2	1	0	0	0	0	0	0
0	2	0	0	3	1	1	1	0	0

Construct a frequency histogram.

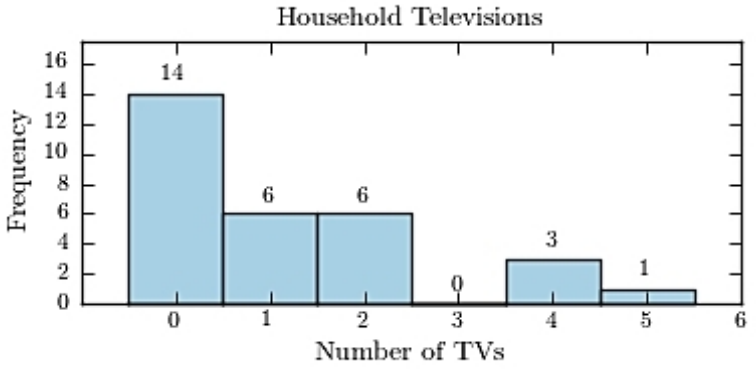
A)



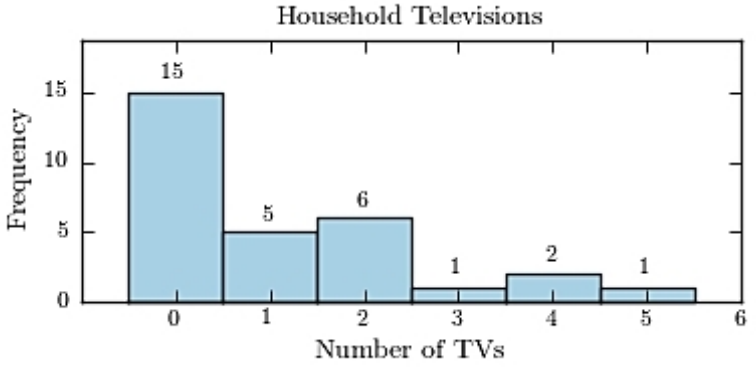
B)



C)



D)

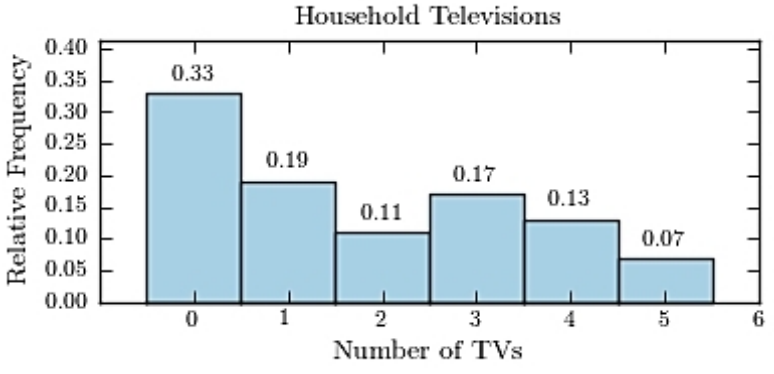


57) Thirty households were surveyed for the number of televisions in each home. Following are the results. 57) _____

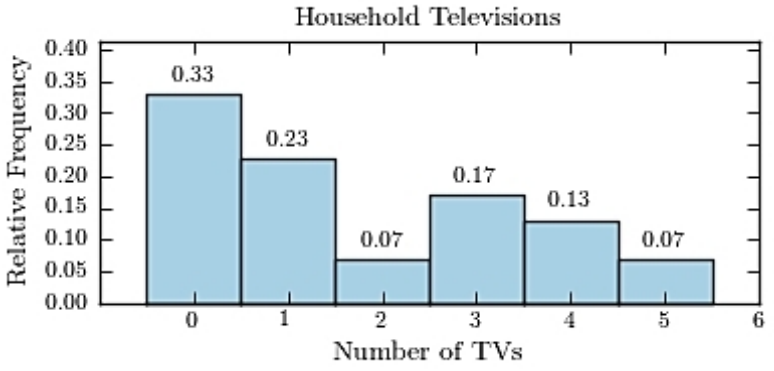
4	0	4	3	0	0	4	1	0	4
0	1	1	0	1	1	5	2	5	1
3	0	3	0	1	0	3	2	3	0

Construct a relative frequency histogram.

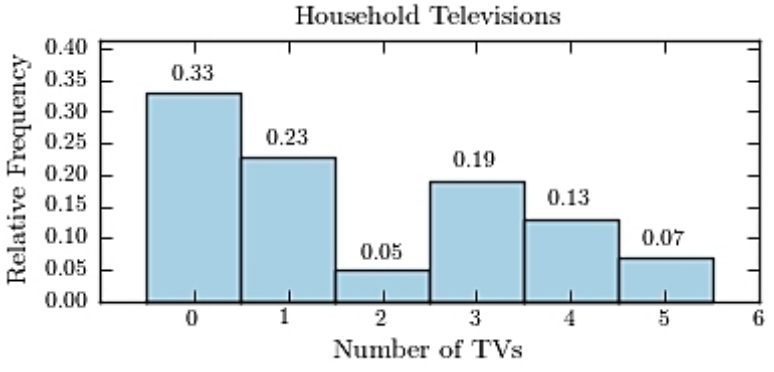
A)



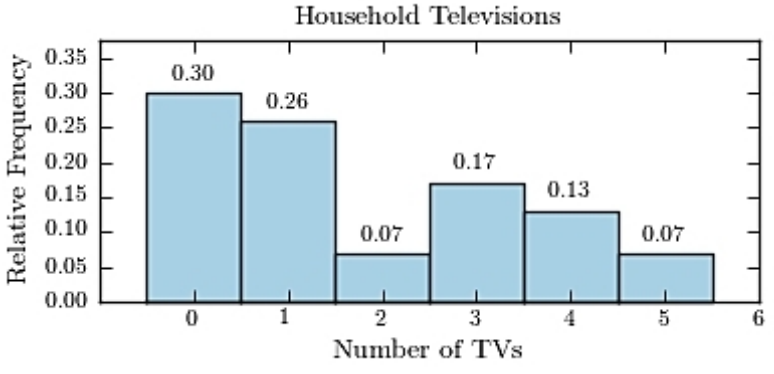
B)


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)

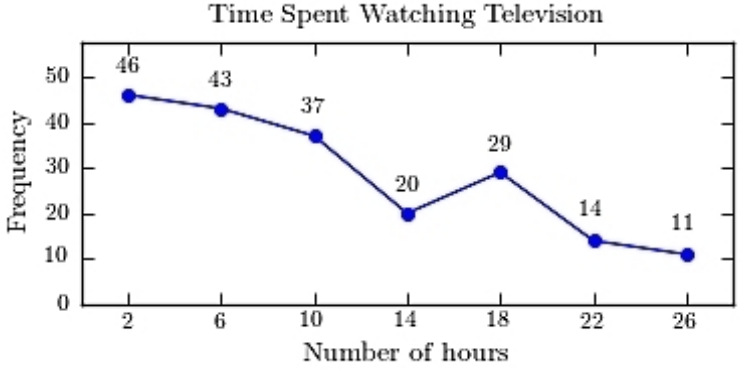

Household Televisions
Relative Frequency
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.30
0.26
0.07
0.17
0.13
0.07
0
1
2
3
4
5
6
Number of TVs

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) _____

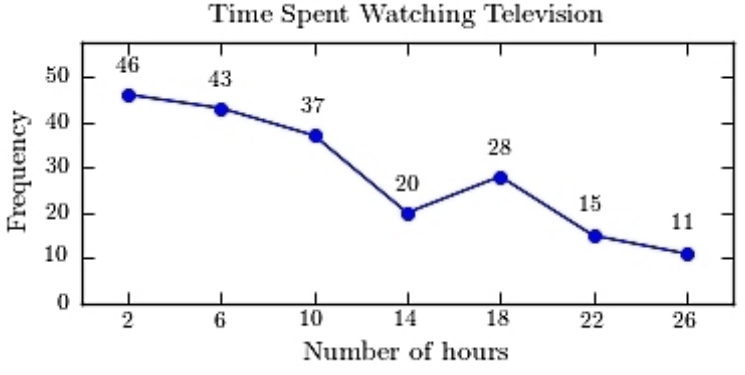
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	46
4.0-7.9	43
8.0-11.9	37
12.0-15.9	20
16.0-19.9	28
20.0-23.9	15
24.0-27.9	11

Construct a frequency polygon for the frequency distribution.

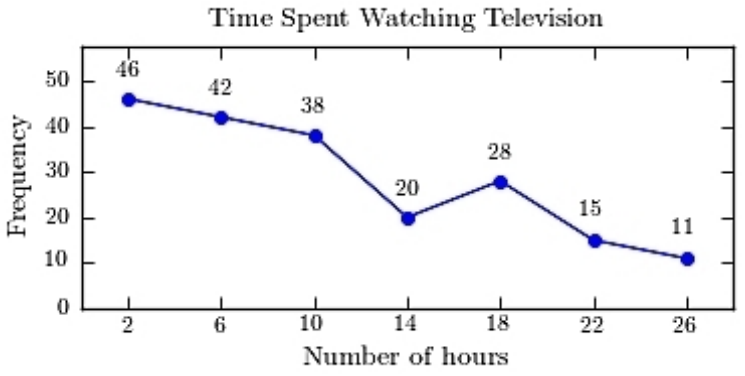
A)



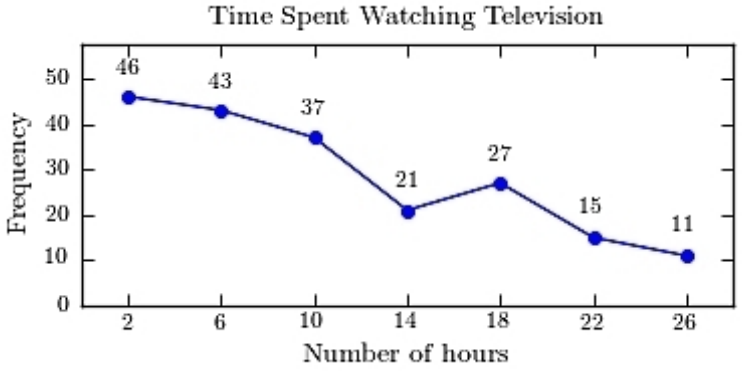
B)



C)



D)

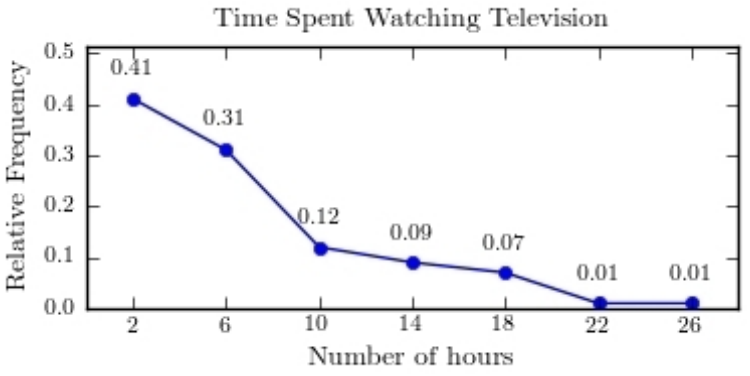


59) A sample of 200 high school students were asked how many hours per week they spend watching television.The following frequency distribution presents the results. 59) _____

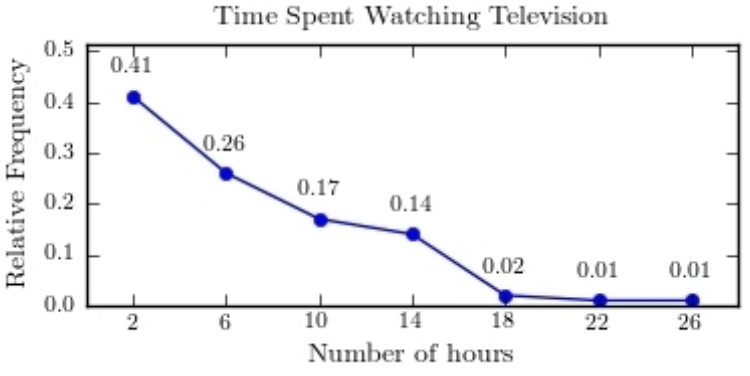
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	81
4.0-7.9	51
8.0-11.9	34
12.0-15.9	17
16.0-19.9	13
20.0-23.9	2
24.0-27.9	2

Construct a relative frequency polygon for the frequency distribution.

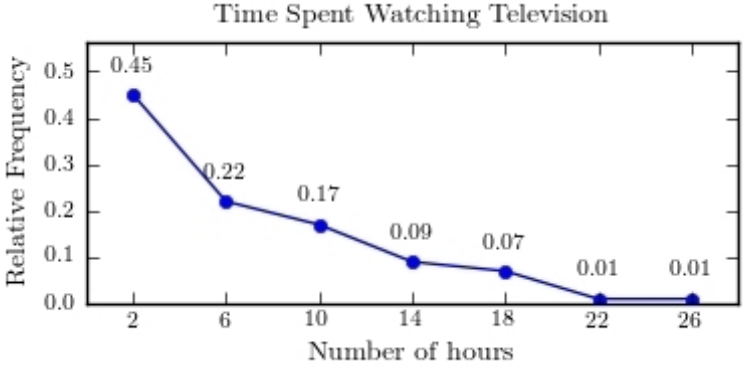
A)


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

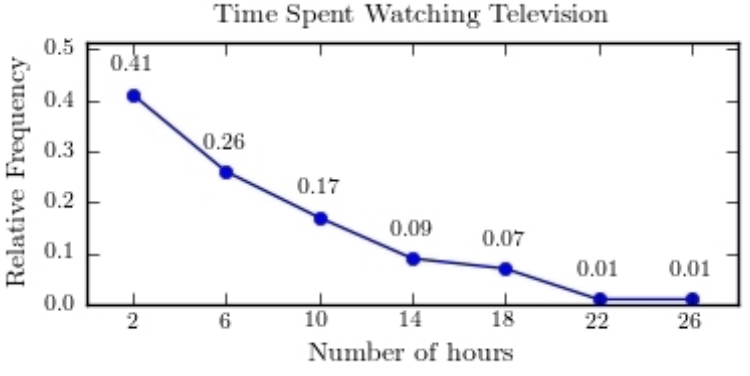
B)


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
0.45
0.22
0.17
0.09
0.07
0.01
0.01
2
6
10
14
18
22
26
Number of hours

D)

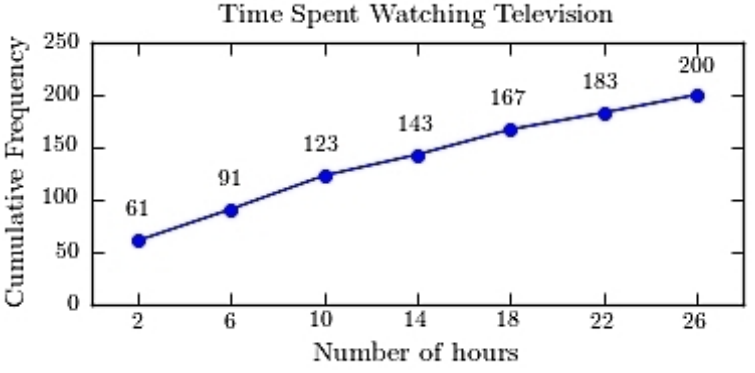

Time Spent Watching Television
Relative Frequency
0.5
0.4
0.3
0.2
0.1
0.0
0.41
0.26
0.17
0.09
0.07
0.01
0.01
2
6
10
14
18
22
26
Number of hours

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) _____

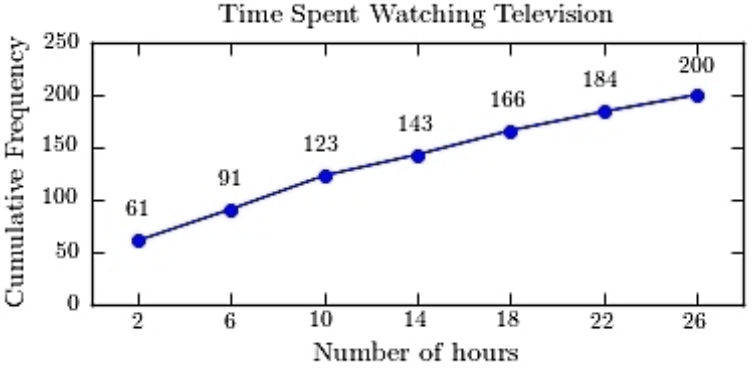
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	61
4.0-7.9	30
8.0-11.9	32
12.0-15.9	20
16.0-19.9	23
20.0-23.9	18
24.0-27.9	16

Construct a frequency ogive for the frequency distribution.

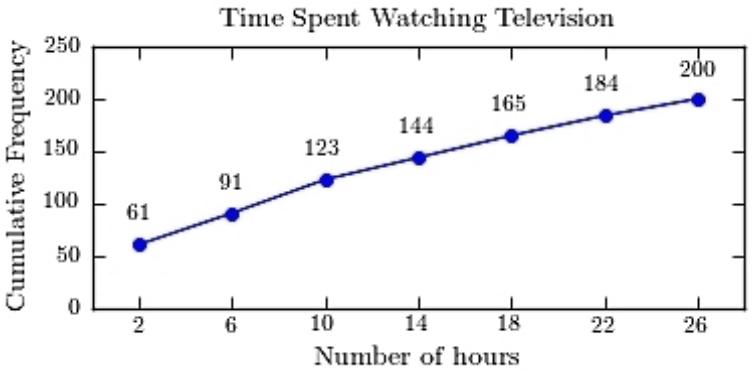
A)



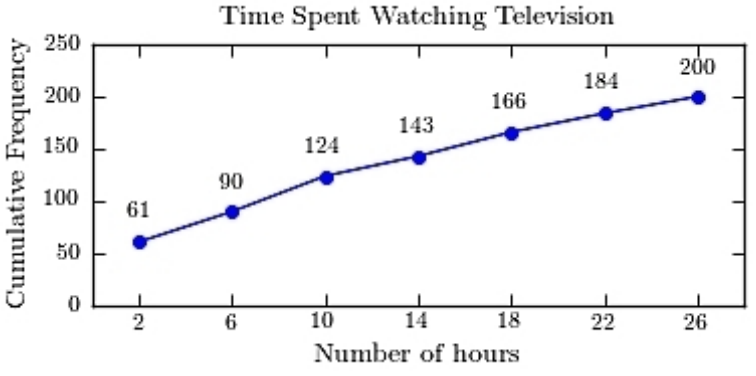
B)



C)



D)

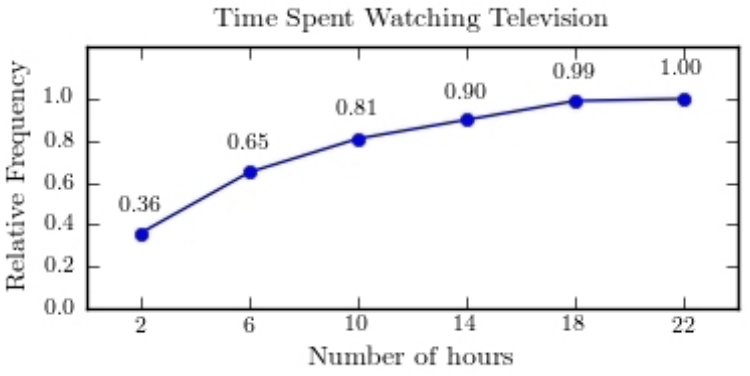


61) A sample of 200 high school students were asked how many hours per week they spend watching television.The following frequency distribution presents the results. 61) _____

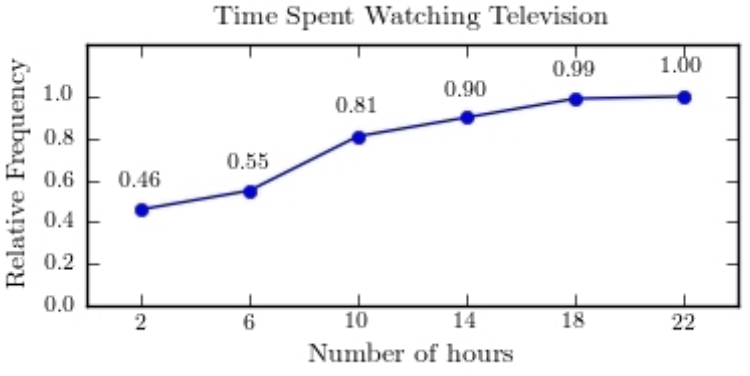
Time Spent Watching Television	
Number of hours	Frequency
0.0-3.9	71
4.0-7.9	59
8.0-11.9	32
12.0-15.9	18
16.0-19.9	18
20.0-23.9	2

Construct a relative frequency ogive for the frequency distribution.

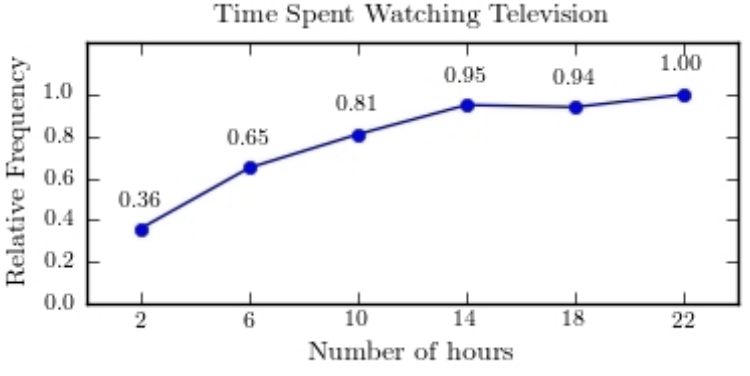
A)


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

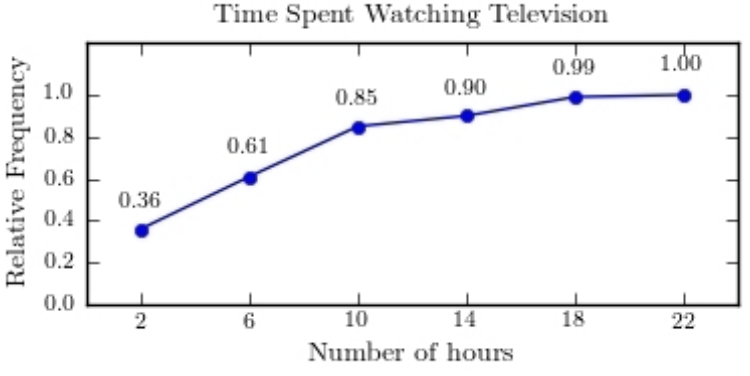
B)


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

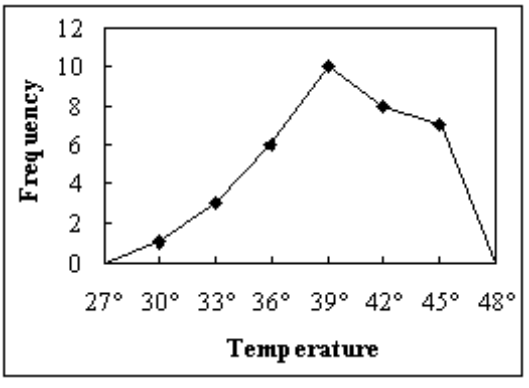
C)


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

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



28) B
29) D
30) B
31) D
32) A

33) frequency polygon
34) D
35) D
36) D
37) B
38) A
39) C
40) B
41) D
42) B
43) B
44) B
45) C
46) B
47) right-skewed
48) C
49) A
50) A
51) A
52) C
53) A
54) C
55) D
56) B
57) B
58) B
59) D
60) B
61) A