

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) find the range
- C) use classes that are mutually exclusive
- D) make the class width an even number

Answer: D

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

Answer: B

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) _____

Answer: raw data

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

Answer: frequency

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

Answer: 15

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) 11 B) 80 C) 10 D) 9

Answer: C

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

Answer: D

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

Answer: B

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

- 9) Find the class boundaries, midpoint, and width of the class 28-34? 9) _____
Answer: boundaries: 27.5-34.5; midpoint: 31; width: 7

- 10) Find the class boundaries, midpoint, and width of the class 15.2-18.1? 10) _____
Answer: boundaries: 15.15-18.15; midpoint: 16.65; width: 3

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

- 11) State the reason why the following frequency distribution is incorrectly constructed. 11) _____

| <u>Class</u> | <u>Frequency</u> |
|--------------|------------------|
|--------------|------------------|

| | |
|-------|---|
| 33-40 | 3 |
| 41-48 | 1 |
| 49-55 | 6 |
| 56-63 | 6 |
| 64-71 | 1 |

- A) class limits overlap
B) there is no percent column
C) class width is not uniform
D) a class has been omitted

Answer: C

- 12) State the reason why the following frequency distribution is incorrectly constructed. 12) _____

| <u>Class</u> | <u>Frequency</u> |
|--------------|------------------|
|--------------|------------------|

| | |
|-------|---|
| 45-50 | 3 |
| 50-55 | 0 |
| 55-60 | 6 |
| 60-65 | 5 |
| 65-70 | 3 |

- A) class limits overlap
B) a class has been omitted
C) there is no percent column
D) class width is not uniform

Answer: A

- 13) State the reason why the following frequency distribution is incorrectly constructed. 13) _____

| <u>Class</u> | <u>Frequency</u> |
|--------------|------------------|
|--------------|------------------|

| | |
|---------|----|
| 124-129 | 1 |
| 130-135 | 7 |
| 142-147 | 11 |
| 148-153 | 14 |

- A) a class has been omitted
B) class width is not uniform
C) there is no percent column
D) class limits overlap

Answer: A

- 14) 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? 14) _____

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

Answer: A

- 15) What is the midpoint of the class 6-10? 15) _____

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

Answer: B

- 16) 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? 16) _____
A) cumulative B) ungrouped C) categorical D) grouped

Answer: C

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

Answer: D

- 18) What is the midpoint of the class 17–20? 18) _____
A) 1.5 B) 18 C) 18.5 D) 3

Answer: C

- 19) What is the upper class boundary of the class 23-35 ? 19) _____
A) 7 B) 7.5 C) 35.5 D) 35

Answer: C

- 20) If the limits for a class were 20-38, the boundaries would be 19.5-38.5. 20) _____
A) False B) True

Answer: B

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

- 21) For grouped frequency distributions, the _____ is obtained by adding the lower and upper limits and dividing by 2. 21) _____

Answer: class midpoint

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

- 22) What is the lower class limit in the class 8-12? 22) _____
A) 7.5 B) 8.5 C) 10 D) 8

Answer: D

- 23) Which of the following pairs of class limits would be appropriate for grouping the numbers 11, 14, 9, and 16? 23) _____
A) 9-12 and 13-16 B) 9-11 and 14-16
C) 9-11 and 12-16 D) 8-12 and 12-16

Answer: A

- 24) 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) 24) _____

_____.

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

Answer: C

- 25) What are the boundaries of the class 1.87-3.43? 25) _____
 A) 1.879-3.439 B) 1.865-3.435 C) 1.82-3.48 D) 1.87-3.43
 Answer: B

- 26) For the class 16.3-23.8, the width is 8.5. 26) _____
 A) True B) False
 Answer: B

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

- 27) When the range is large, and classes that are several units in width are needed, a 27) _____
 _____ frequency distribution is used.
 Answer: grouped

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

- 28) The cumulative frequency for a class is the sum of the frequencies of the classes less 28) _____
 than and equal to the upper boundary of the specific class.
 A) True B) False
 Answer: A
- 29) A recent statistics exam yielded the following 25 scores. Construct a grouped frequency 29) _____
 distribution with the class limits shown below.

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 | 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 | 3 |
| 61-70 | 5 |
| 71-80 | 5 |
| 81-90 | 6 |
| 91-100 | 4 |

Answer: B

- 30) 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. 30) _____

| Vehicle Type | Frequency |
|--------------|-----------|
| Motorcycle | 11 |
| Sedan | 60 |
| SUV | 80 |
| Truck | 39 |

What is the relative frequency of the Motorcycle category?

A) 0.138

B) 11%

C) 0.058

D) 11

Answer: C

- 31) 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. 31) _____

| 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 |

Answer: D

- 32) A survey was taken on how much trust people place in the information they read on the Internet. Construct a categorical frequency distribution for the data. A trust in all that they read, M trust in most of what they read, H trust in about one-half of what they read, S trust in a small portion of what they read.

M H M M H M M H M S
H A M H M H M M H M
H M M M M S M M A S
M H M M M S H M M M

A)

| Class | Frequency |
|-------|-----------|
| A | 2 |
| M | 22 |
| H | 12 |
| S | 4 |

B)

| Class | Frequency |
|-------|-----------|
| A | 2 |
| M | 24 |
| H | 10 |
| S | 4 |

C)

| Class | Freq | Percent |
|-------|----------|------------|
| A | 2 | 5% |
| M | 22 | 55% |
| H | 12 | 30% |
| S | <u>4</u> | <u>10%</u> |
| | 40 | 100% |

D)

| Class | Freq | Percent |
|-------|----------|------------|
| A | 2 | 5% |
| M | 24 | 60% |
| H | 10 | 25% |
| S | <u>4</u> | <u>10%</u> |
| | 40 | 100% |

Answer: D

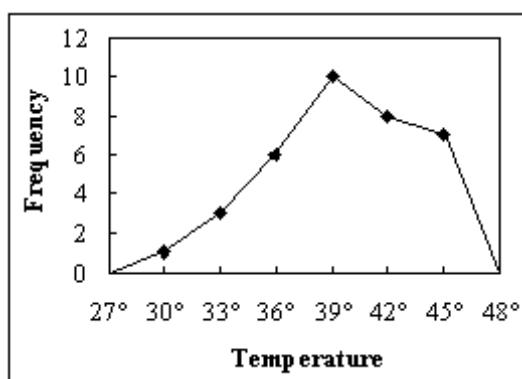
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

33) Construct a frequency polygon from the following frequency distribution.

33) _____

| <u>Temperature</u> | <u>Frequency</u> |
|--------------------|------------------|
| 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 |

Answer:



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

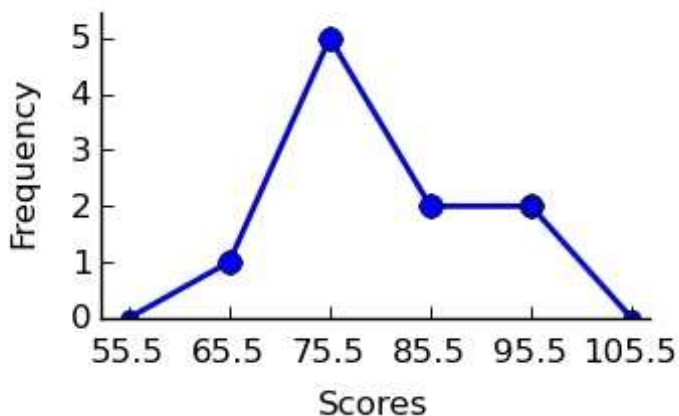
34) A recent statistics exam yielded the following 10 scores. Construct a frequency distribution using the class limits shown below.

34) _____

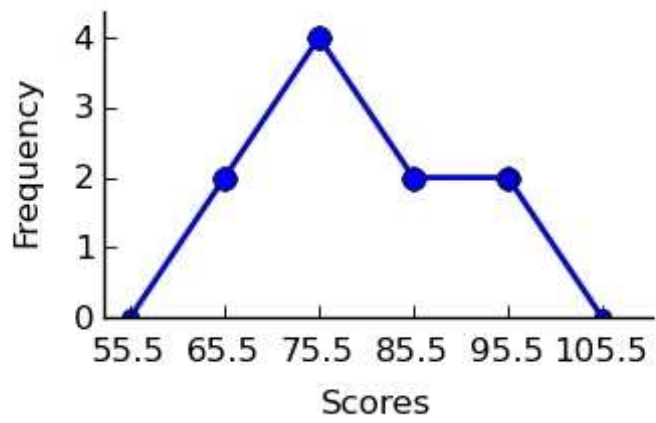
80, 99, 77, 67, 93, 71, 76, 86, 79, 71

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

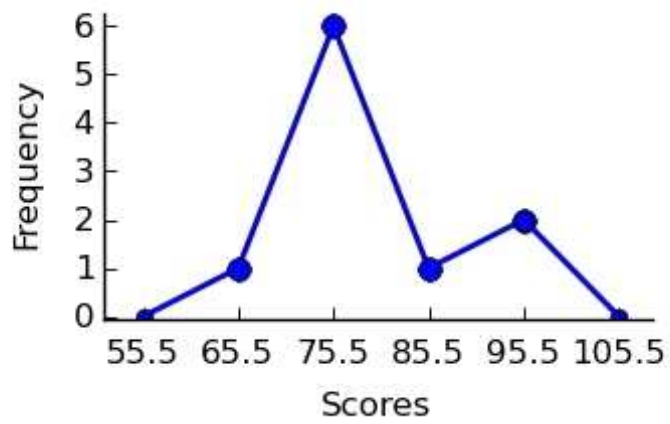
A)



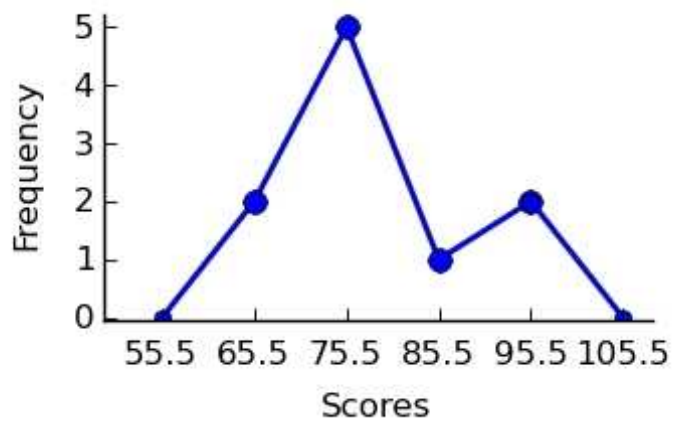
B)



C)



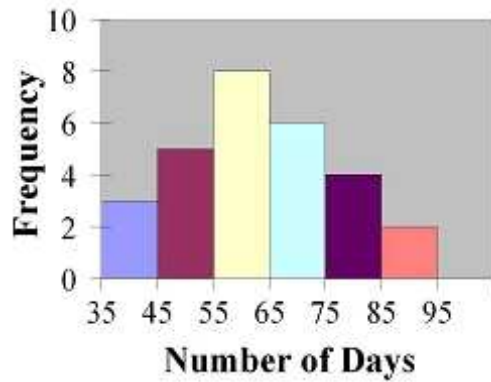
D)



Answer: C

35) Find the class with the least number of data values.

35) _____



A) 55-65

B) 85-95

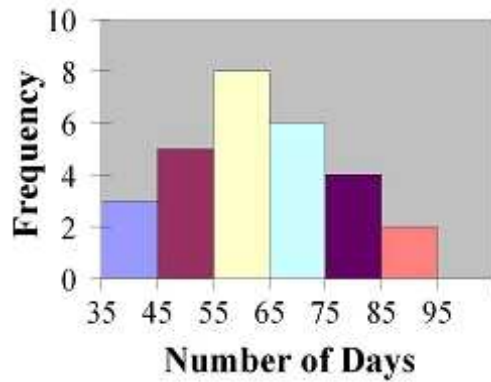
C) 65-75

D) 75-85

Answer: B

36) Find the class with the greatest number of data values

36) _____



A) 65-75

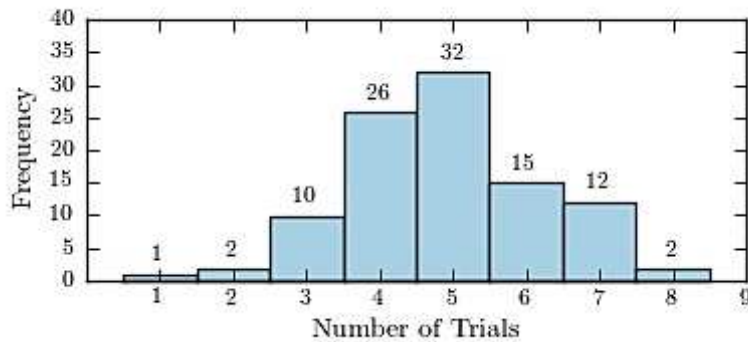
B) 75-85

C) 55-65

D) 85-95

Answer: C

- 37) 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. 37) _____



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

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

Answer: D

- 38) An ogive is also called a cumulative frequency graph. 38) _____

- A) False B) True

Answer: B

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

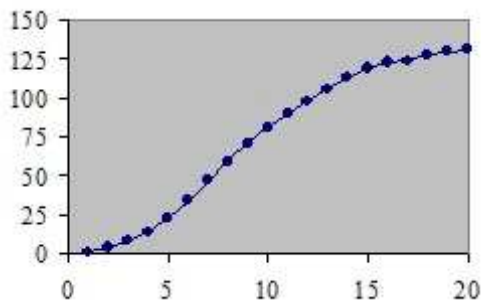
- 39) The three most commonly used graphs in research are the histogram, the _____, and the cumulative frequency graph (ogive). 39) _____

Answer: frequency polygon

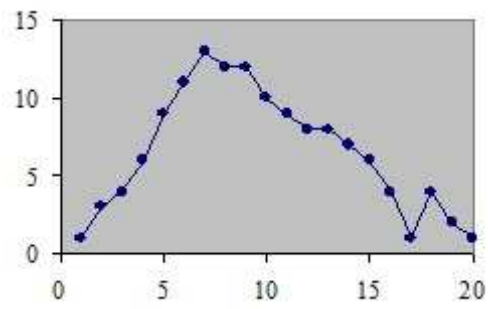
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 40) Which of the following could be a cumulative frequency graph? 40) _____

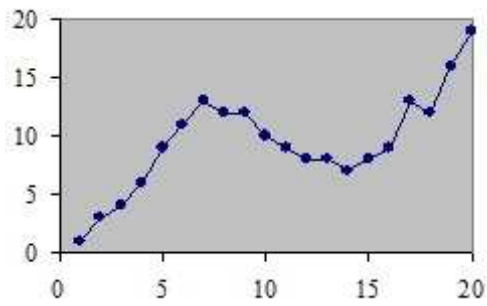
A)



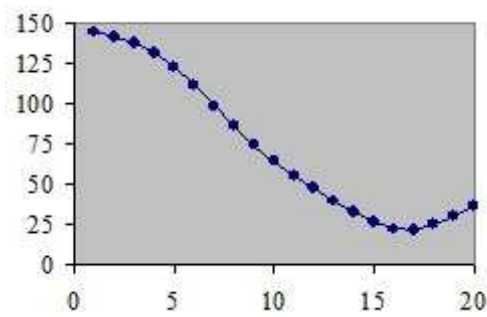
B)



C)



D)

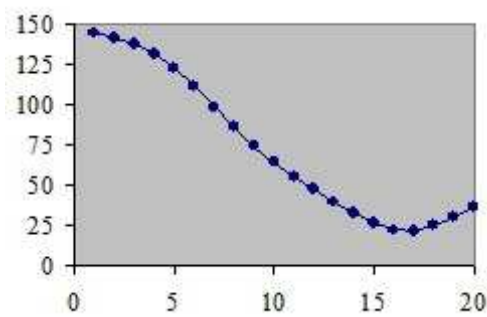


Answer: A

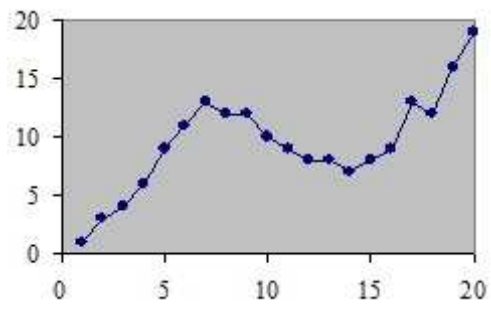
41) Which of the following could be an ogive?

41) _____

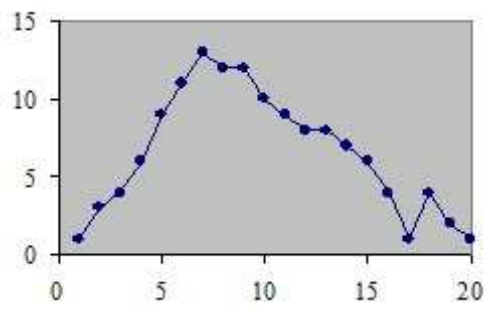
A)



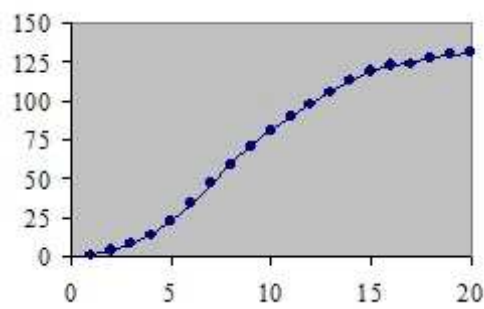
B)



C)



D)

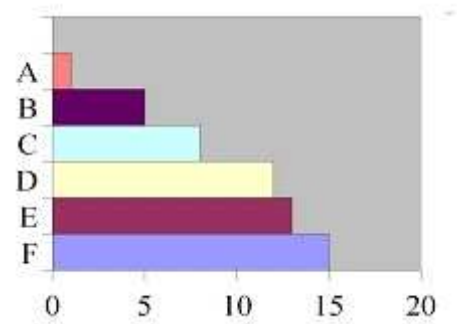


Answer: D

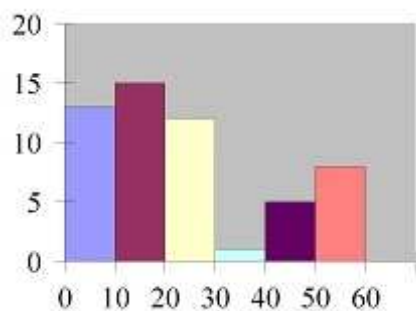
42) Which of the following is a histogram?

42) _____

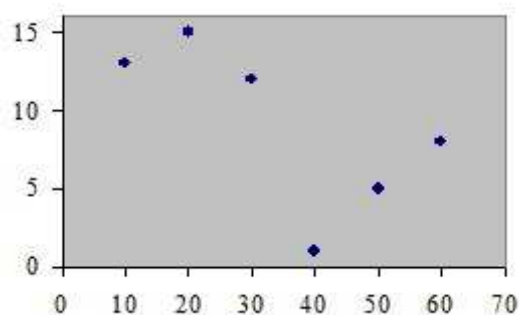
A)



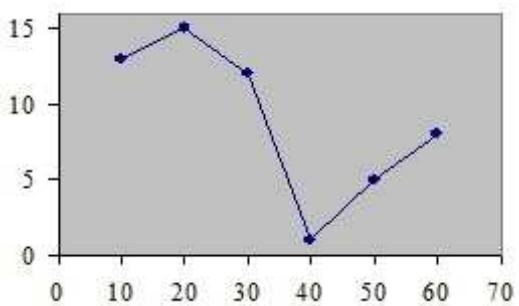
B)



C)



D)



Answer: B

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

43) _____

A) True

B) False

Answer: A

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

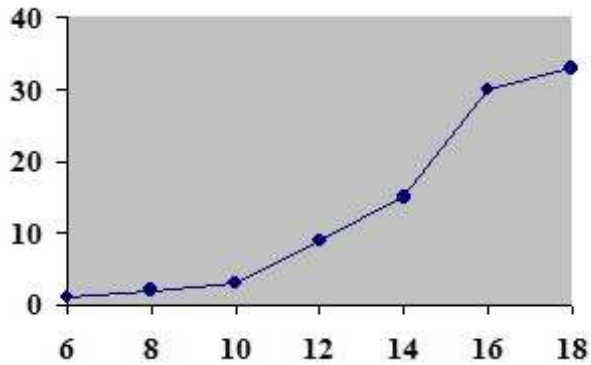
44) _____

A) False

B) True

Answer: A

- 45) Using the ogive shown below, what is the cumulative frequency of data values less than or equal to 16 ? 45) _____



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

Answer: B

- 46) Graphs that show distributions using proportions instead of raw data as frequencies are called 46) _____

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

Answer: B

- 47) Which type of graph represents the data by using vertical bars of various heights to indicate frequencies? 47) _____

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

Answer: C

- 48) 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. 48) _____

- A) True B) False

Answer: A

- 49) A histogram is a graph that represents the cumulative frequencies for the classes in a frequency distribution. 49) _____

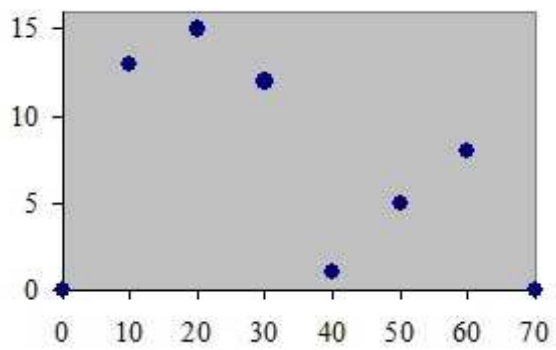
- A) False B) True

Answer: A

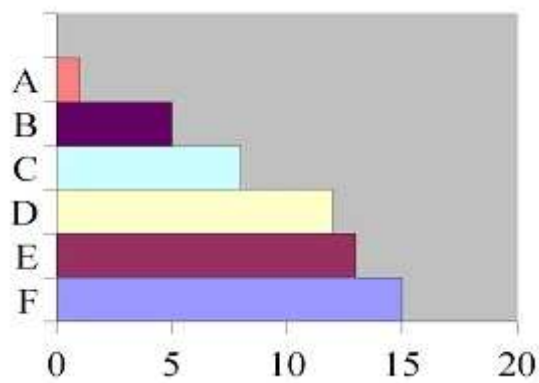
50) Which of the following is a frequency polygon?

50) _____

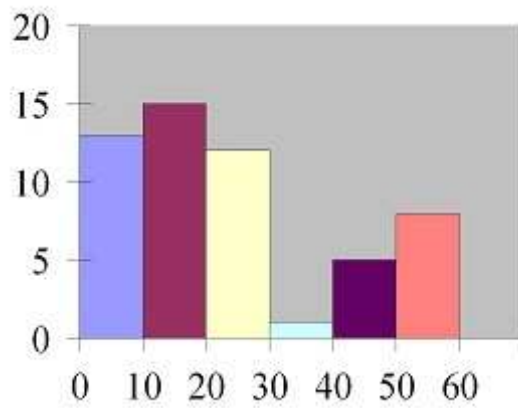
A)



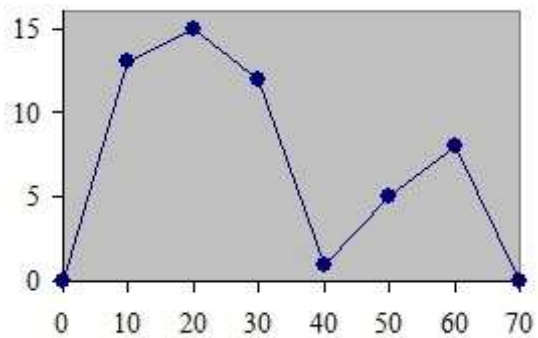
B)



C)



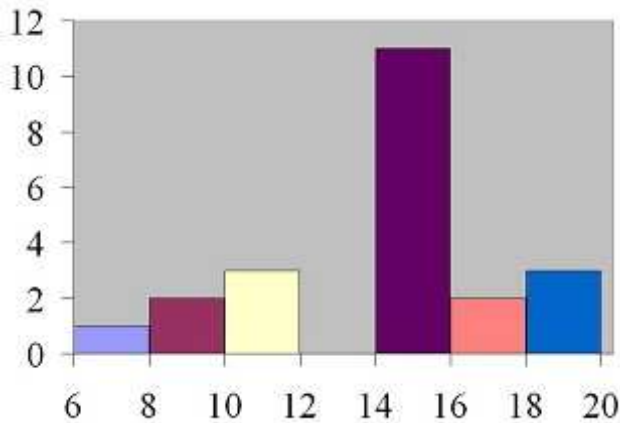
D)



Answer: D

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

51) _____



A) 72

B) 76

C) 6

D) 22

Answer: D

52) Given the following frequency distribution, how many pieces of data were less than 28.5? 52) _____

| 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) 13

B) 12

C) 25

D) 44

Answer: C

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

53) 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

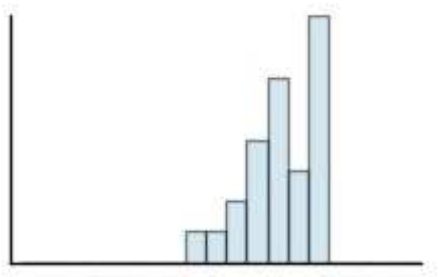
53) _____

_____.

Answer: right-skewed

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

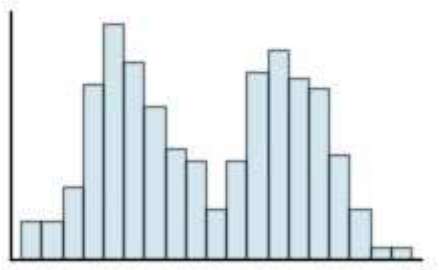
54) Classify the histogram as skewed to the left, skewed to the right, or approximately symmetric 54) _____



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

Answer: A

55) Classify the histogram as unimodal or bimodal. 55) _____



- A) unimodal
- B) bimodal

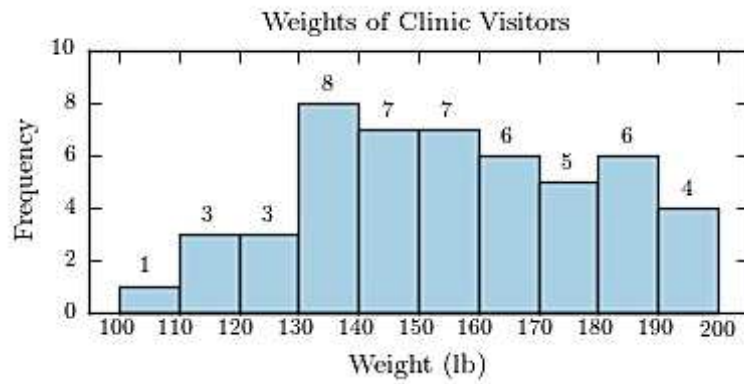
Answer: B

56) The following frequency distribution presents the weights in pounds (lb) of a sample of visitors to a health clinic. 56) _____

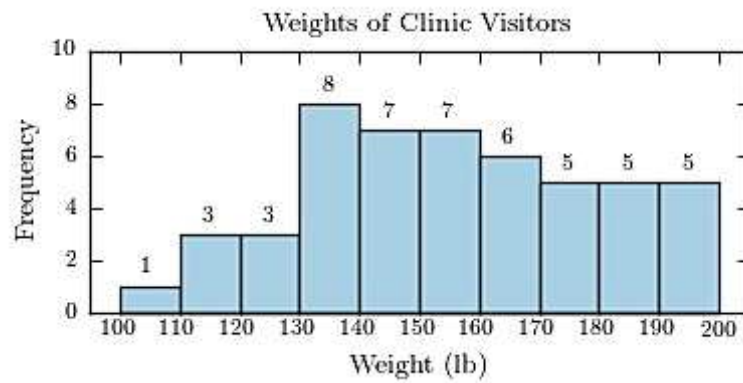
| Weights of Clinic Visitors | |
|----------------------------|-----------|
| Weight (lb) | Frequency |
| 100–109 | 1 |
| 110–119 | 3 |
| 120–129 | 3 |
| 130–139 | 8 |
| 140–149 | 7 |
| 150–159 | 7 |
| 160–169 | 6 |
| 170–179 | 5 |
| 180–189 | 6 |
| 190–199 | 4 |

Construct a frequency histogram.

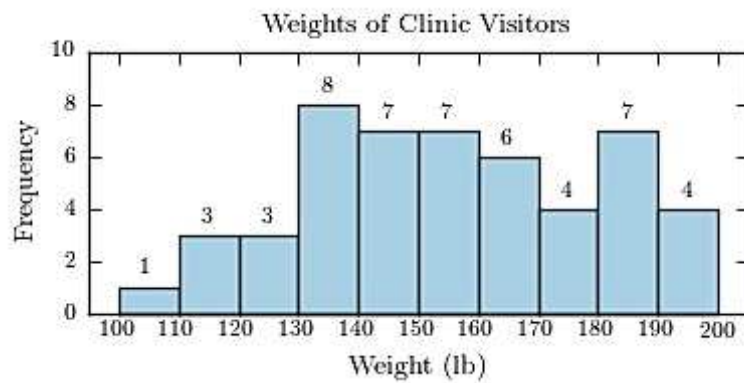
A)



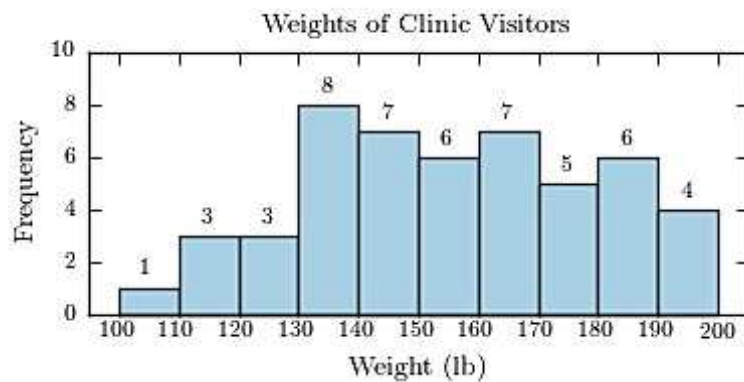
B)



C)



D)



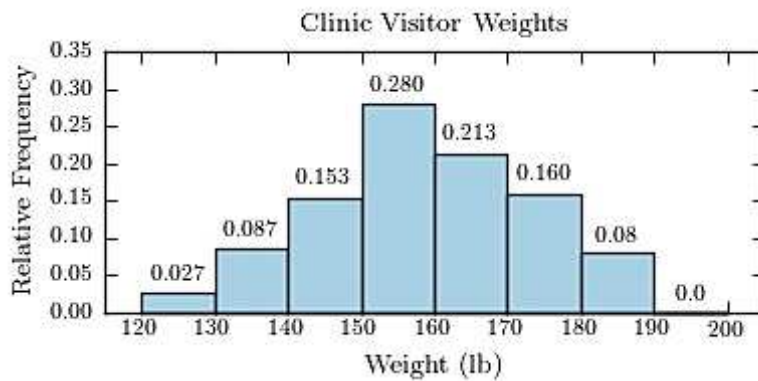
Answer: A

- 57) The following frequency distribution presents the weights in pounds (lb) of a sample of visitors to a health clinic. 57) _____

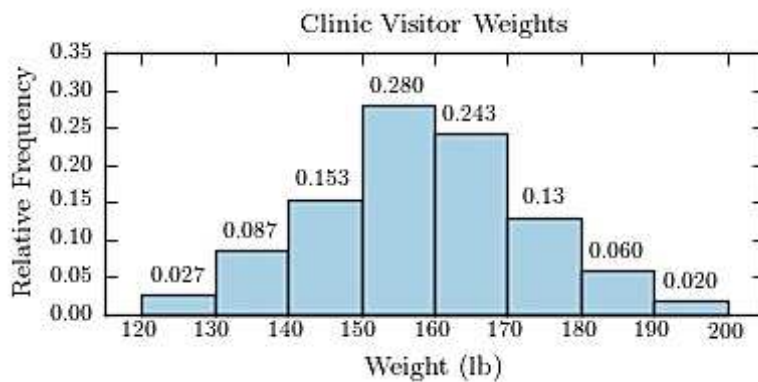
| Clinic Visitor Weights | |
|------------------------|-----------|
| Weight (lb) | Frequency |
| 120-129 | 4 |
| 130-139 | 13 |
| 140-149 | 23 |
| 150-159 | 42 |
| 160-169 | 32 |
| 170-179 | 24 |
| 180-189 | 9 |
| 190-199 | 3 |

Construct a relative frequency histogram.

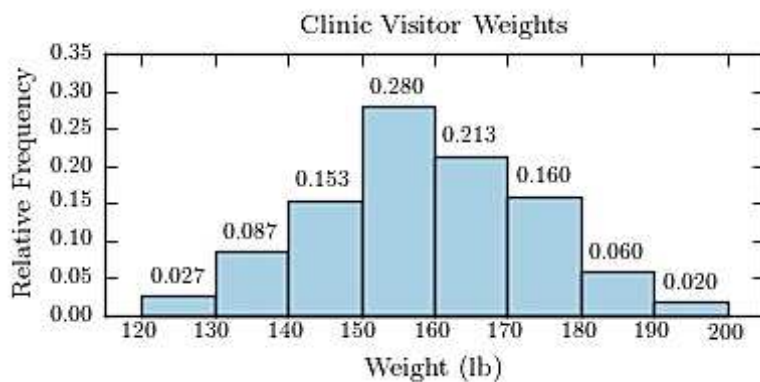
A)



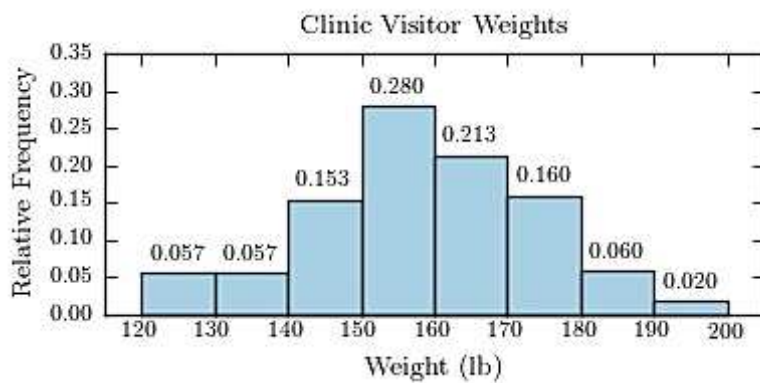
B)



C)



D)



Answer: C

58) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 58) _____

Construct a frequency distribution using a class width of 10, and using 0 as the lower class 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 | 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 | 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 | 4 |
| 90.00-99.99 | 2 |

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 |

Answer: A

- 59) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 59) _____

Construct a relative frequency distribution using a class width of 10, and using 0 as the lower 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 | 0.240 |
| 60.00-69.99 | 0.060 |
| 70.00-79.99 | 0.100 |
| 80.00-89.99 | 0.100 |
| 90.00-99.99 | 0.050 |

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 | 0.250 |
| 60.00-69.99 | 0.040 |
| 70.00-79.99 | 0.110 |
| 80.00-89.99 | 0.100 |
| 90.00-99.99 | 0.050 |

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 |

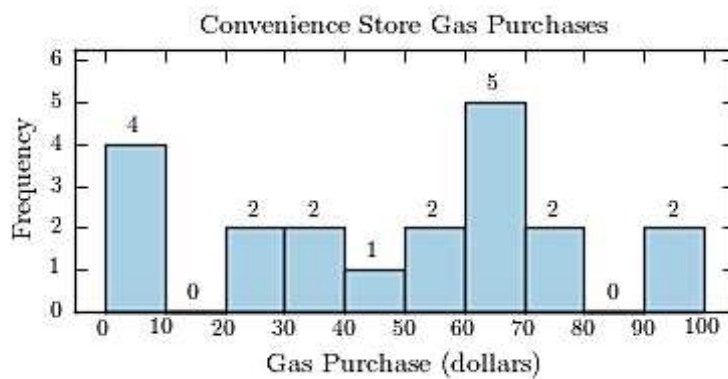
Answer: A

60) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 60) _____

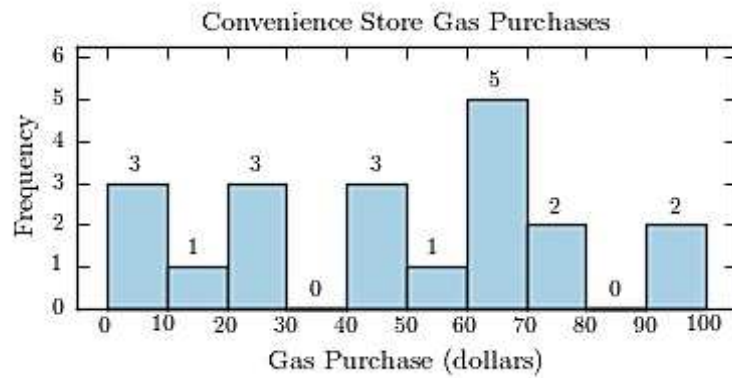
Construct a frequency histogram using a class width of 10, and using 0 as the lower class the first class.

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

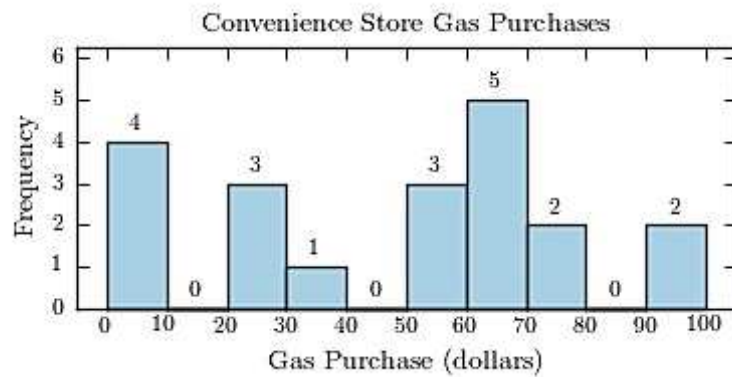
A)



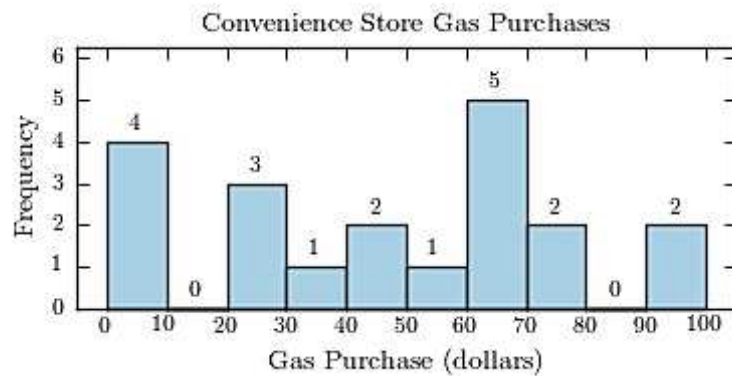
B)



C)



D)



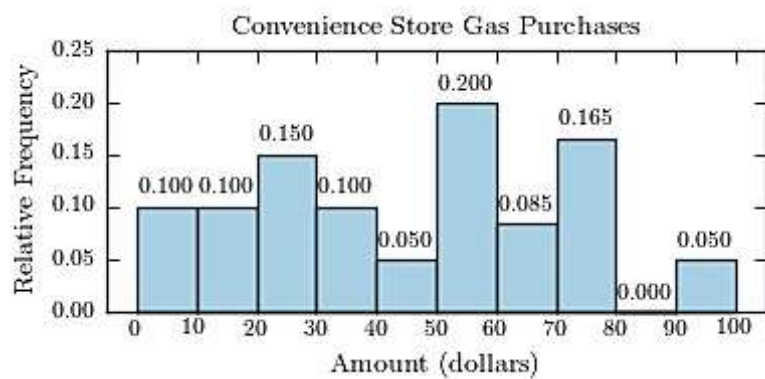
Answer: D

61) The following table presents the purchase totals (in dollars) of a random sample of gasoline purchases at a convenience store. 61) _____

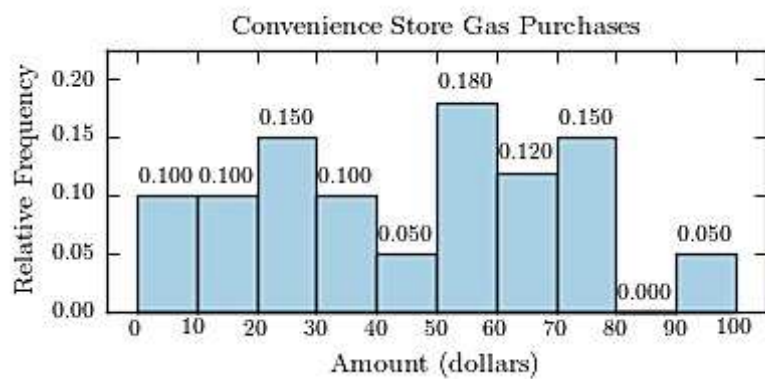
Construct a relative frequency histogram using a class width of 10, and using 0 as the low limit for the first class.

| | | | | |
|-------|-------|-------|-------|-------|
| 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 |

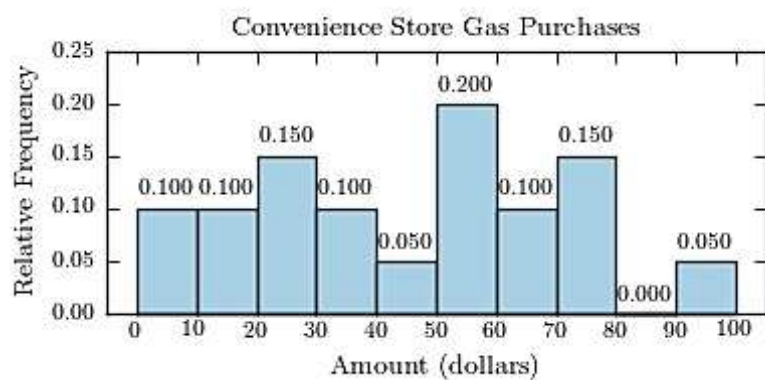
A)



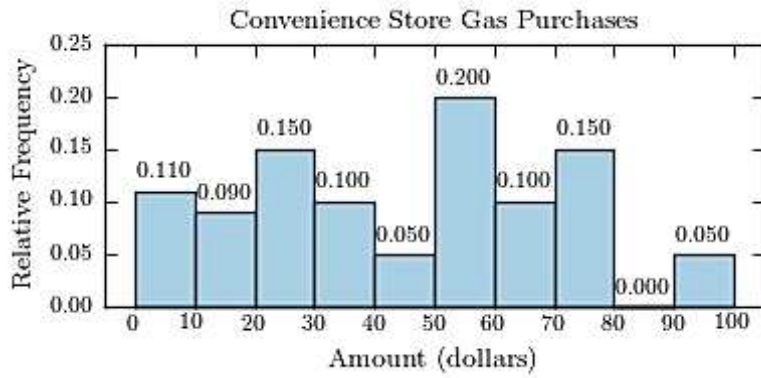
B)



C)



D)



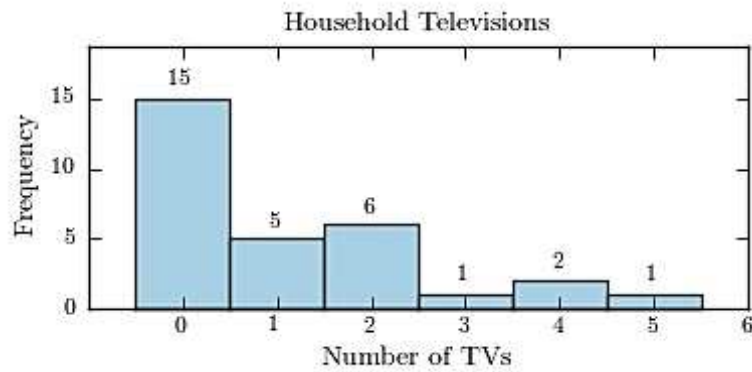
Answer: C

62) Thirty households were surveyed for the number of televisions in each home. Following a 62) _____ results.

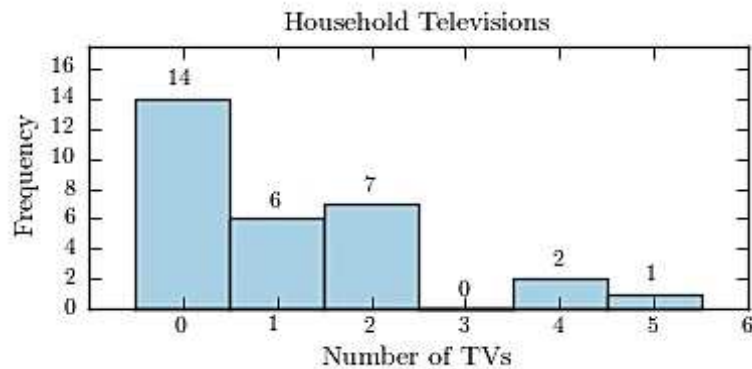
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 5 | 2 |
| 4 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 2 | 0 | 0 | 3 | 1 | 1 | 1 | 0 | 0 |

Construct a frequency histogram.

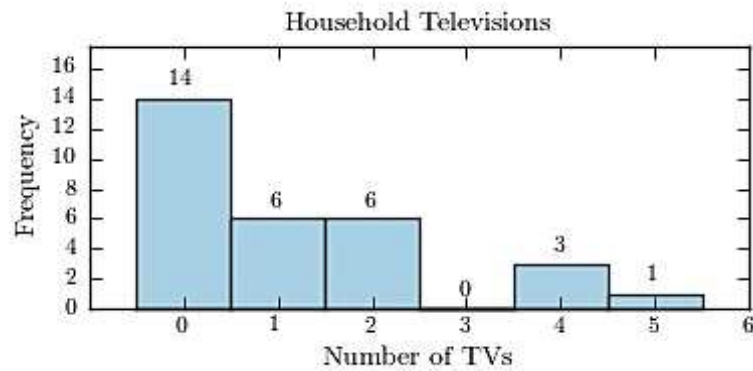
A)



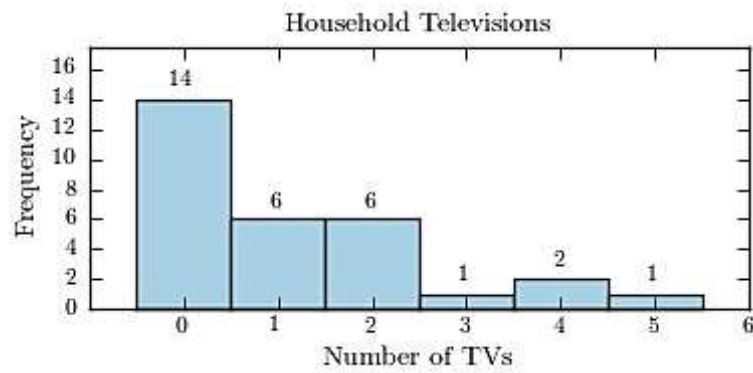
B)



C)



D)



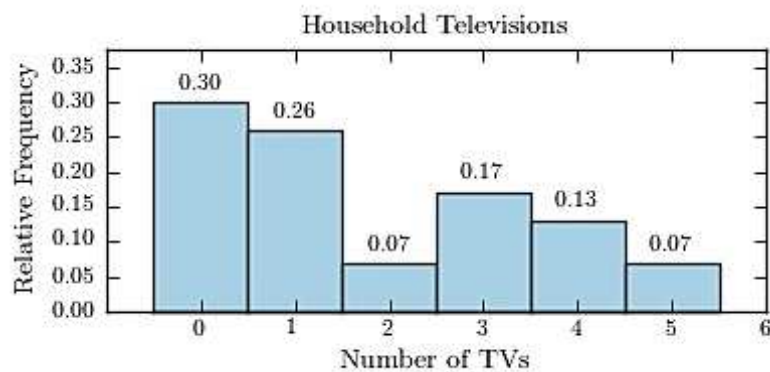
Answer: D

63) Thirty households were surveyed for the number of televisions in each home. Following a 63) _____ results.

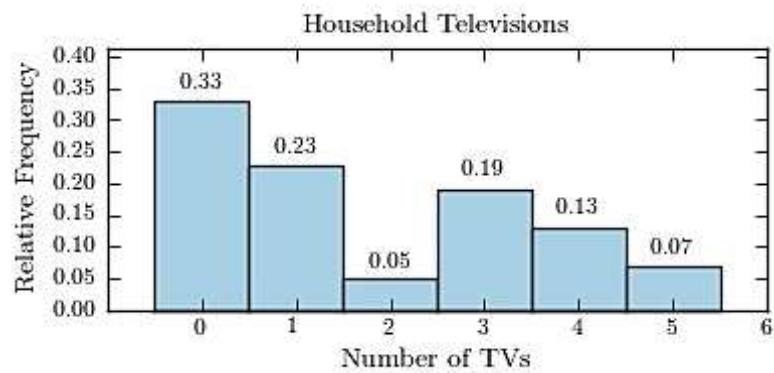
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 0 | 4 | 3 | 0 | 0 | 4 | 1 | 0 | 4 |
| 0 | 1 | 1 | 0 | 1 | 1 | 5 | 2 | 5 | 1 |
| 3 | 0 | 3 | 0 | 1 | 0 | 3 | 2 | 3 | 0 |

Construct a relative frequency histogram.

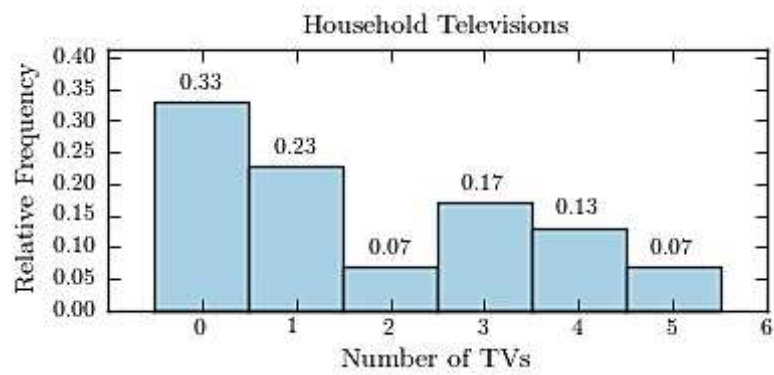
A)



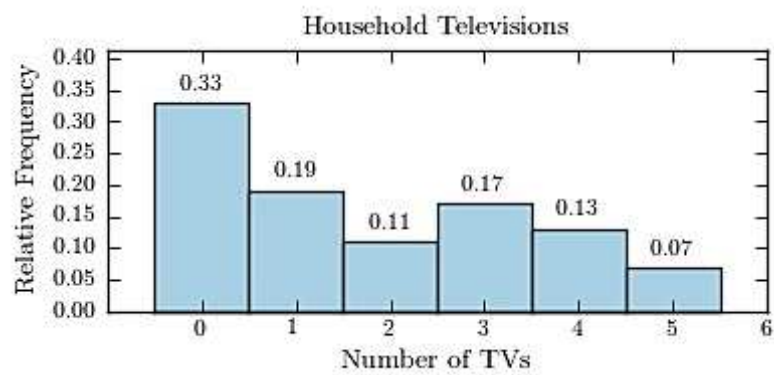
B)



C)



D)



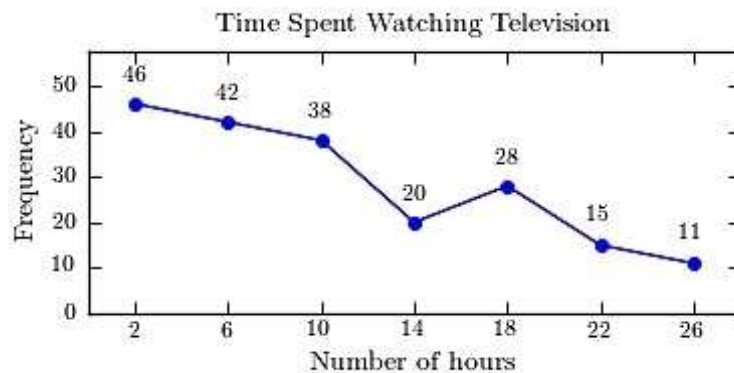
Answer: C

- 64) 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. 64) _____

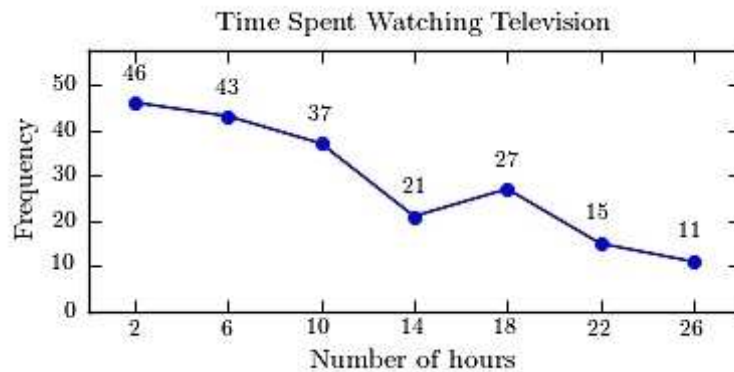
| Time Spent Watching Television | |
|--------------------------------|-----------|
| Number of hours | Frequency |
| 0.0-3.9 | 46 |
| 4.0-7.9 | 43 |
| 8.0-11.9 | 37 |
| 12.0-15.9 | 20 |
| 16.0-19.9 | 28 |
| 20.0-23.9 | 15 |
| 24.0-27.9 | 11 |

Construct a frequency polygon for the frequency distribution.

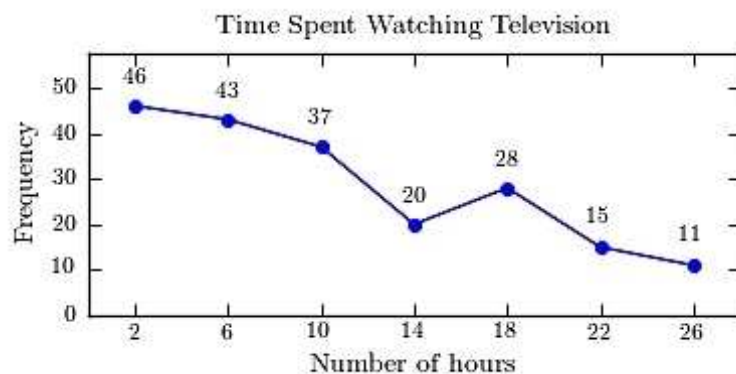
A)



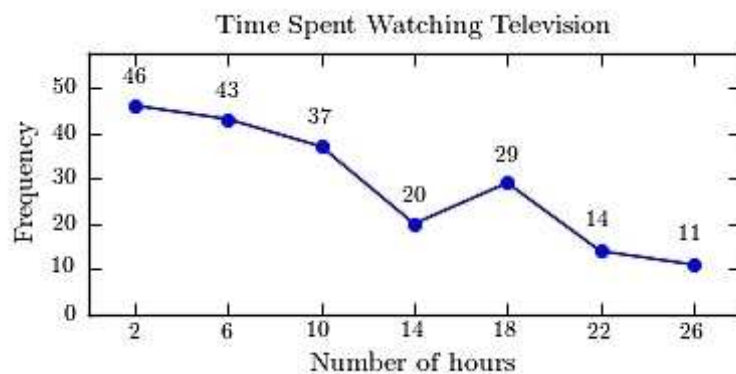
B)



C)



D)



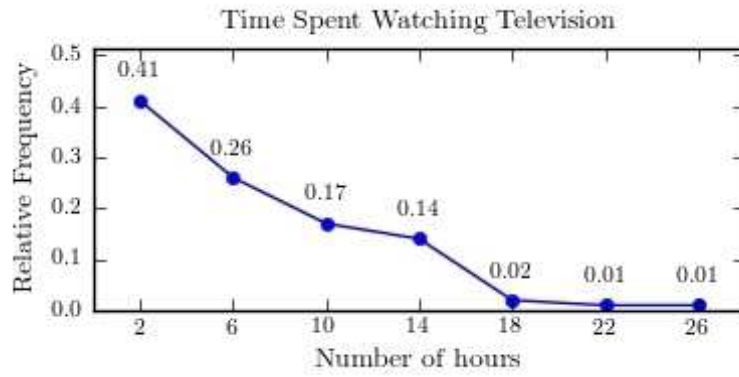
Answer: C

- 65) 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. 65) _____

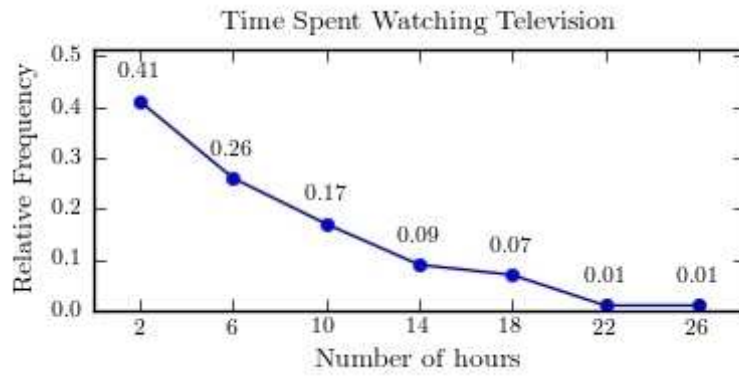
| Time Spent Watching Television | |
|--------------------------------|-----------|
| Number of hours | Frequency |
| 0.0-3.9 | 81 |
| 4.0-7.9 | 51 |
| 8.0-11.9 | 34 |
| 12.0-15.9 | 17 |
| 16.0-19.9 | 13 |
| 20.0-23.9 | 2 |
| 24.0-27.9 | 2 |

Construct a relative frequency polygon for the frequency distribution.

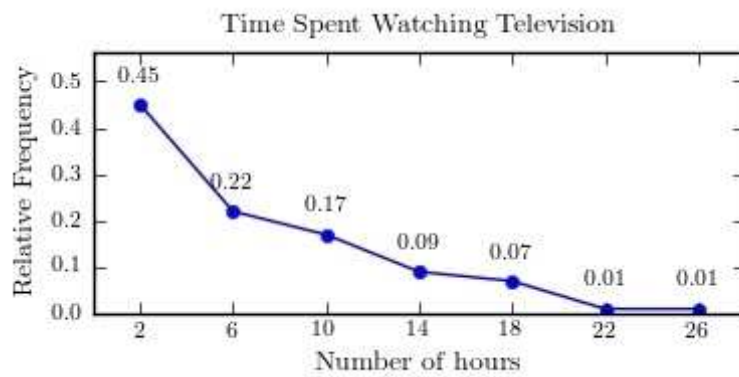
A)



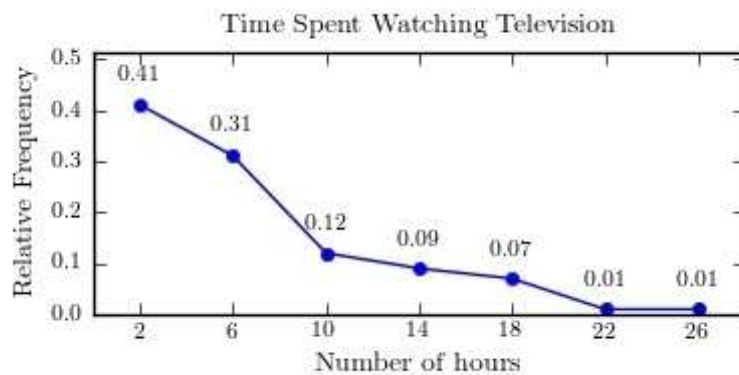
B)



C)



D)



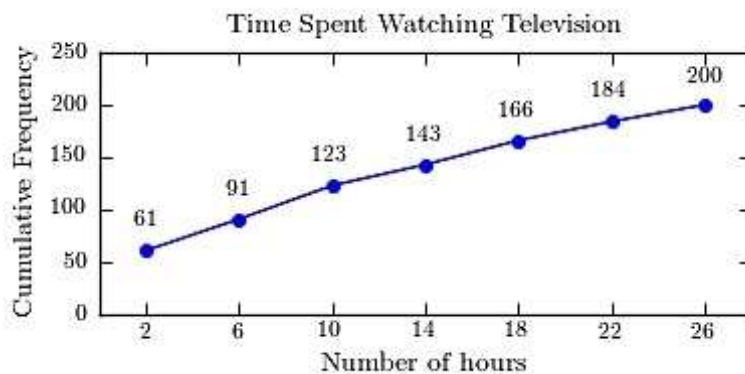
Answer: B

- 66) 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. 66) _____

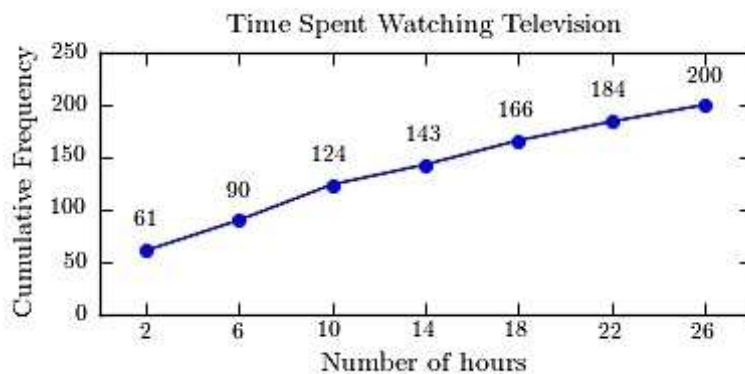
| Time Spent Watching Television | |
|--------------------------------|-----------|
| Number of hours | Frequency |
| 0.0-3.9 | 61 |
| 4.0-7.9 | 30 |
| 8.0-11.9 | 32 |
| 12.0-15.9 | 20 |
| 16.0-19.9 | 23 |
| 20.0-23.9 | 18 |
| 24.0-27.9 | 16 |

Construct a frequency ogive for the frequency distribution.

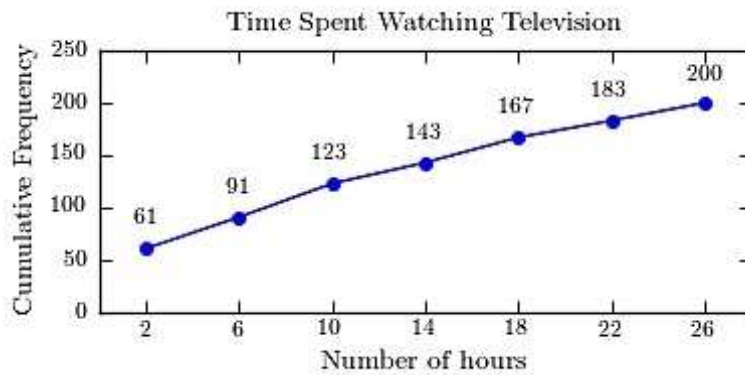
A)



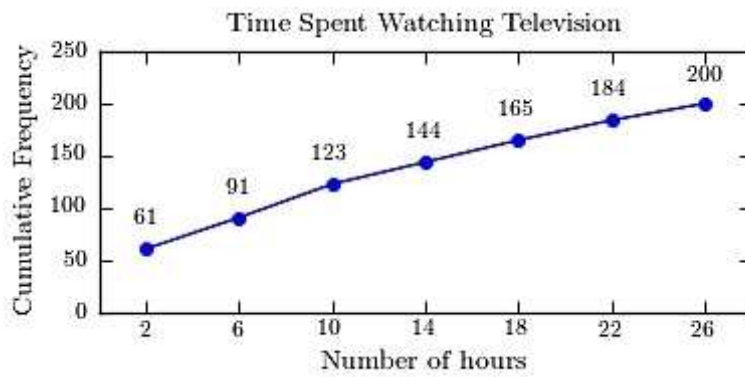
B)



C)



D)



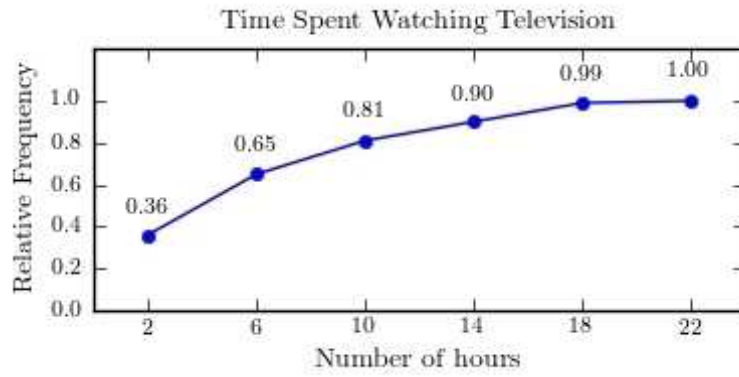
Answer: A

67) 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. 67) _____

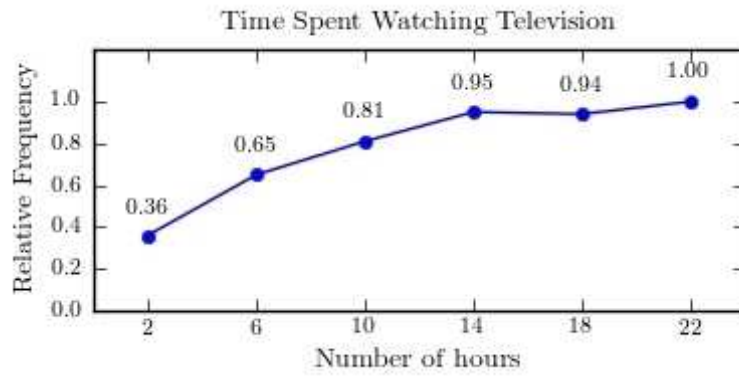
| Time Spent Watching Television | |
|--------------------------------|-----------|
| Number of hours | Frequency |
| 0.0-3.9 | 71 |
| 4.0-7.9 | 59 |
| 8.0-11.9 | 32 |
| 12.0-15.9 | 18 |
| 16.0-19.9 | 18 |
| 20.0-23.9 | 2 |

Construct a relative frequency ogive for the frequency distribution.

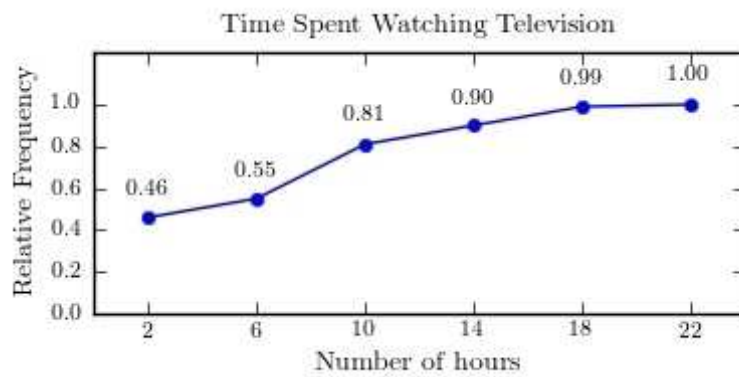
A)



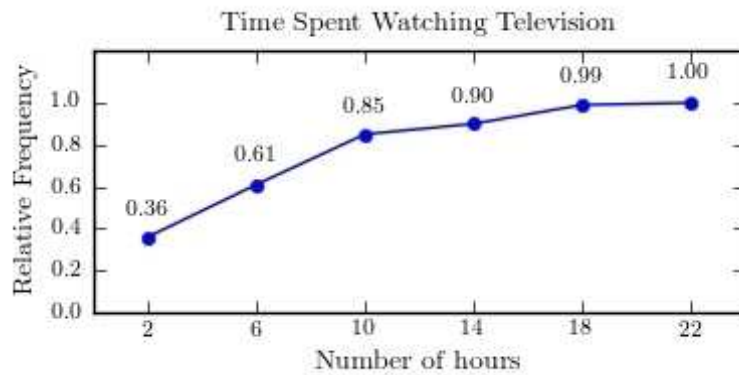
B)



C)



D)



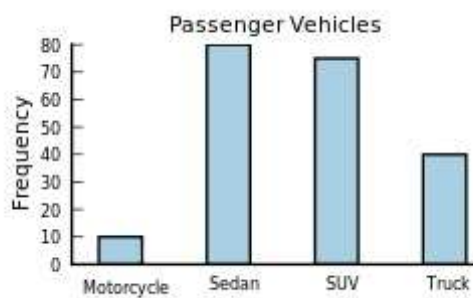
Answer: A

- 68) 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. 68) _____

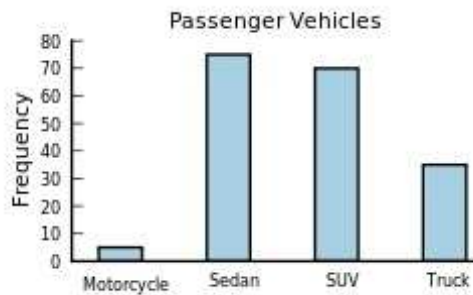
| Vehicle Type | Frequency |
|--------------|-----------|
| Motorcycle | 5 |
| Sedan | 95 |
| SUV | 65 |
| Truck | 30 |

Construct a frequency bar graph for the data.

A)



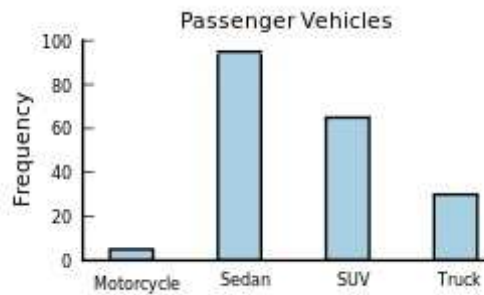
B)



C)



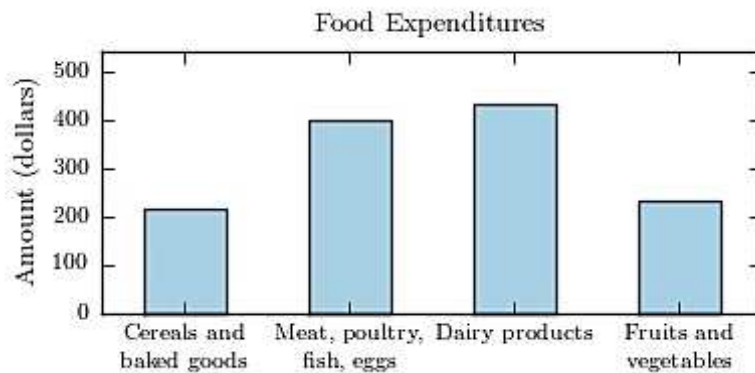
D)



Answer: D

- 69) The following bar graph presents the average amount a certain family spent, in dollars, on food categories in a recent year. 69) _____

On which food category was the most money spent?



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

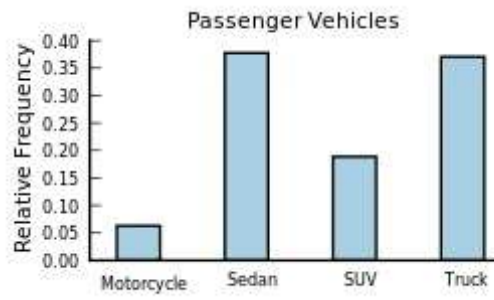
Answer: C

- 70) 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. 70) _____

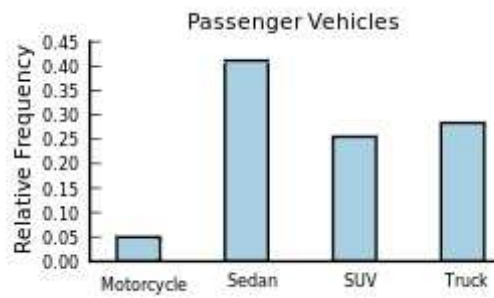
| Vehicle Type | Frequency |
|--------------|-----------|
| Motorcycle | 9 |
| Sedan | 54 |
| SUV | 27 |
| Truck | 53 |

Construct a relative frequency bar graph for the data.

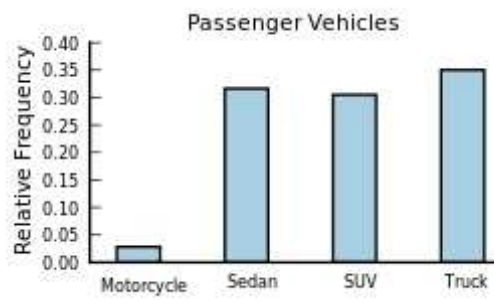
A)



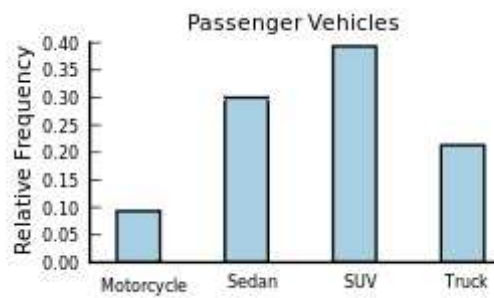
B)



C)



D)



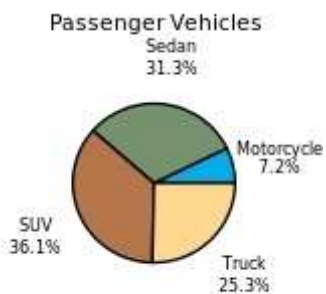
Answer: A

- 71) 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. 71) _____

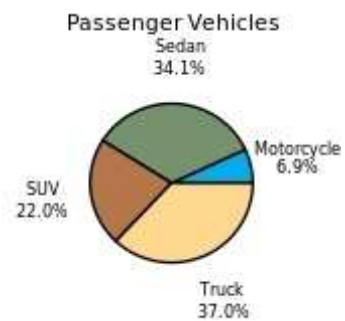
| Vehicle Type | Frequency |
|--------------|-----------|
| Motorcycle | 9 |
| Sedan | 20 |
| SUV | 25 |
| Truck | 39 |

Construct a pie chart for the data.

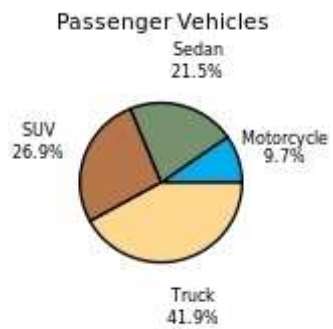
A)



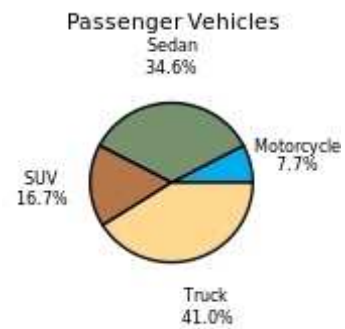
B)



C)



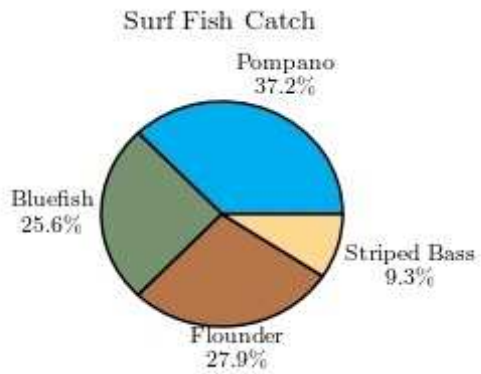
D)



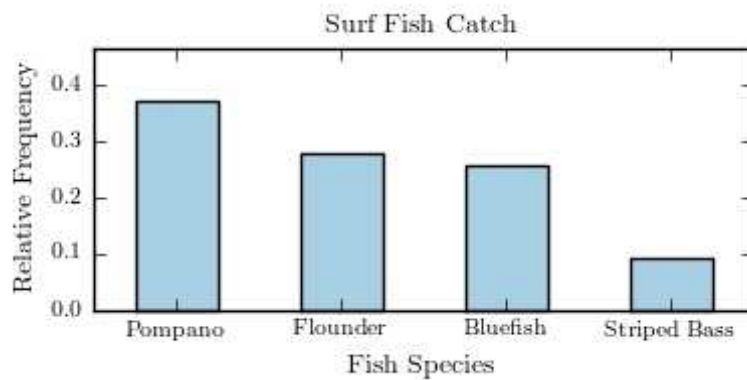
Answer: C

72) The following pie chart presents the percentages of fish caught in each of four ratings cate 72) _____

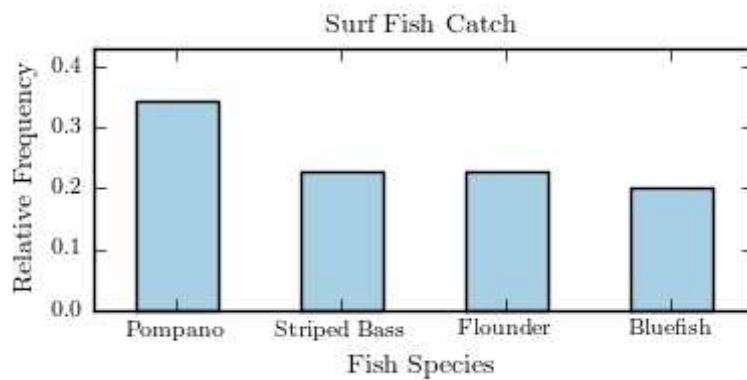
Match this pie chart with its corresponding Parato chart.



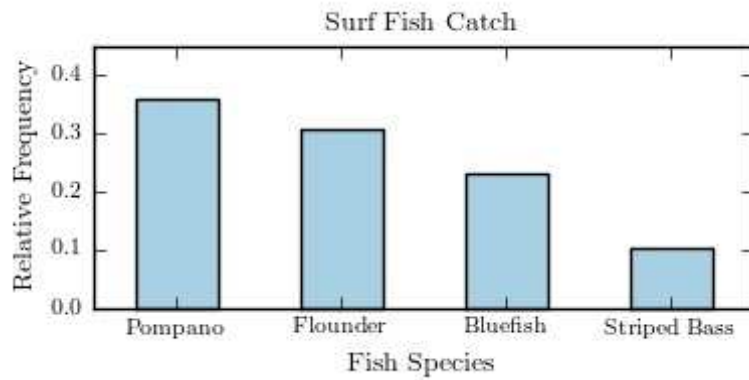
A)



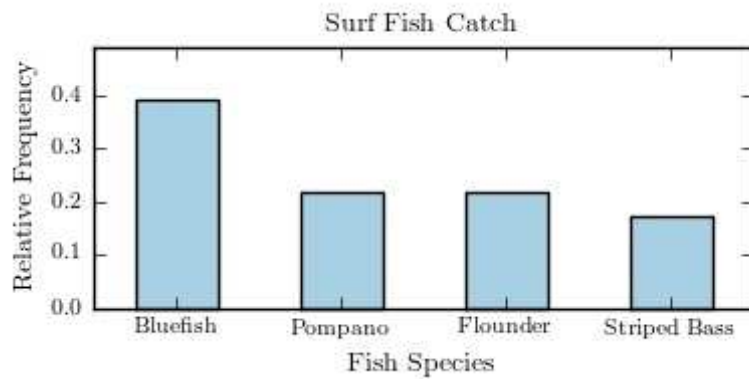
B)



C)



D)



Answer: A

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

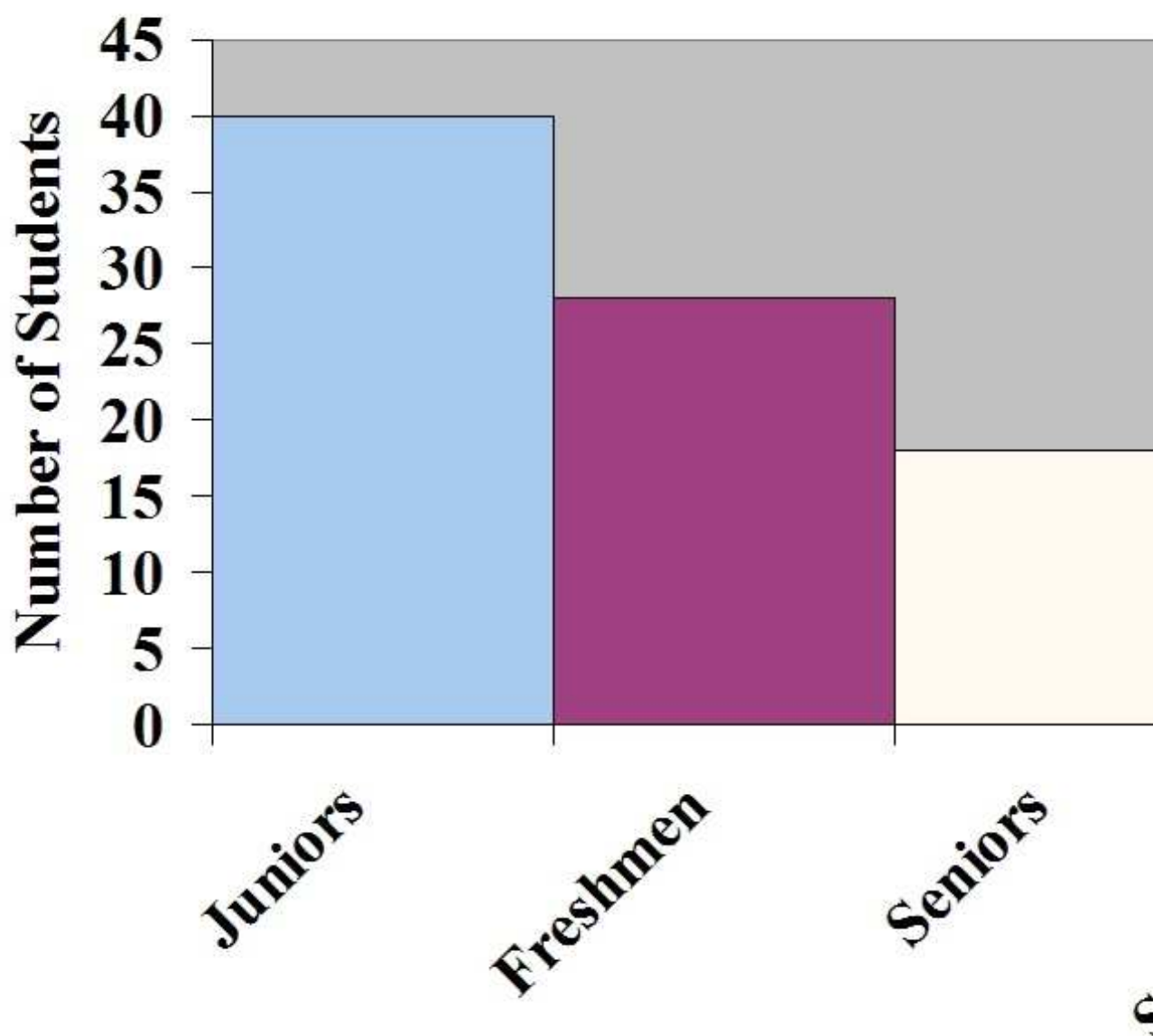
73) Construct a Pareto chart for the following distribution:

73) _____

| <u>Year in School</u> | <u>Number of Students</u> |
|-----------------------|---------------------------|
| Freshmen | 28 |
| Sophomores | 14 |
| Juniors | 40 |
| Seniors | 18 |

Answer:

73)

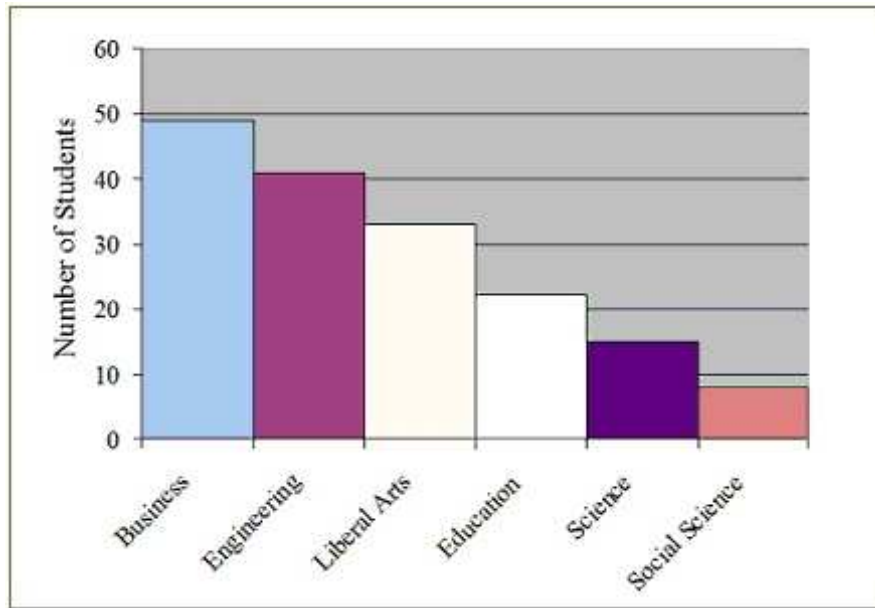


74) Construct a Pareto chart for the following distribution:

74) _____

| <u>Major</u> | <u>Number of Students</u> |
|-----------------|---------------------------|
| Business | 49 |
| Science | 15 |
| Engineering | 41 |
| Social Sciences | 8 |
| Liberal Arts | 33 |
| Education | 22 |

Answer:



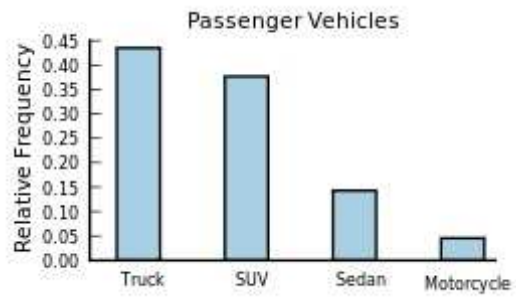
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

75) 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. 75) _____

| <u>Vehicle Type</u> | <u>Frequency</u> |
|---------------------|------------------|
| Motorcycle | 14 |
| Sedan | 46 |
| SUV | 24 |
| Truck | 30 |

Construct a relative frequency Pareto chart for the data.

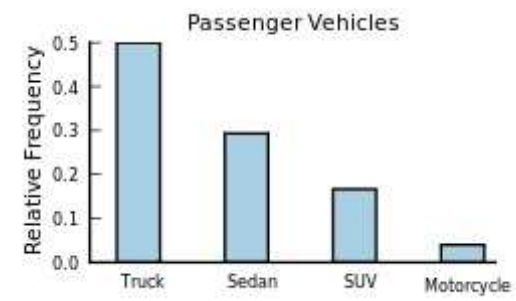
A)



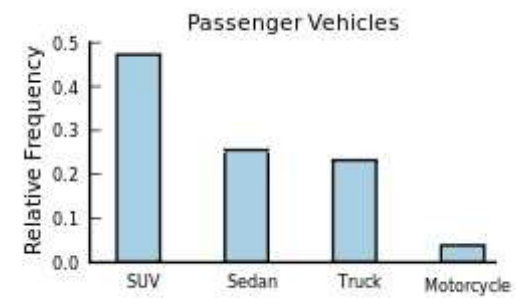
B)



C)



D)



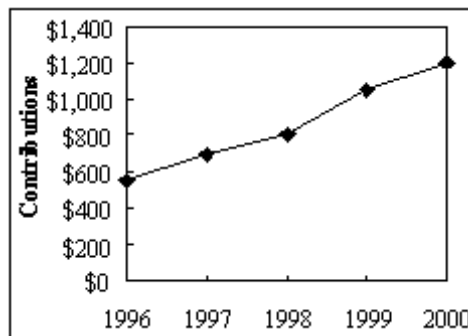
Answer: B

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

- 76) 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. 76) _____

| <u>Year</u> | <u>Contributions</u> |
|-------------|----------------------|
| 1996 | \$550 |
| 1997 | \$700 |
| 1998 | \$800 |
| 1999 | \$1050 |
| 2000 | \$1200 |

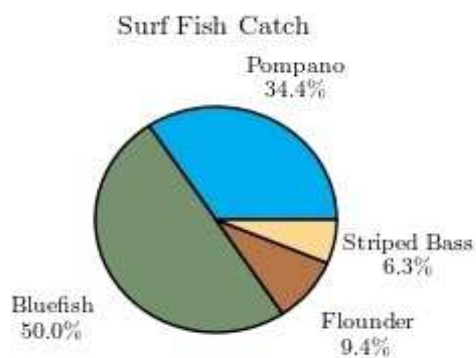
Answer:



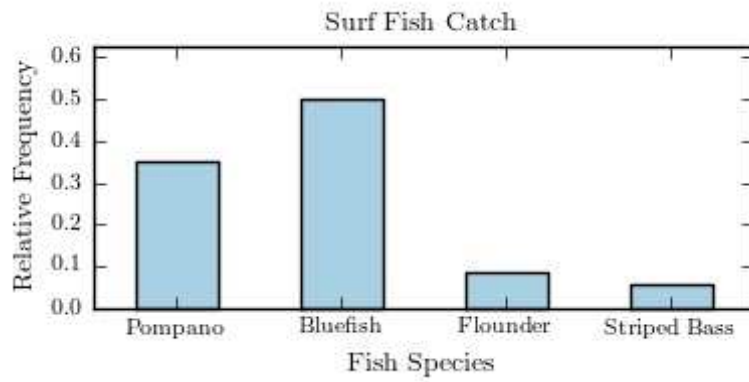
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 77) The following pie chart presents the percentages of fish caught in each of four ratings categories. 77) _____

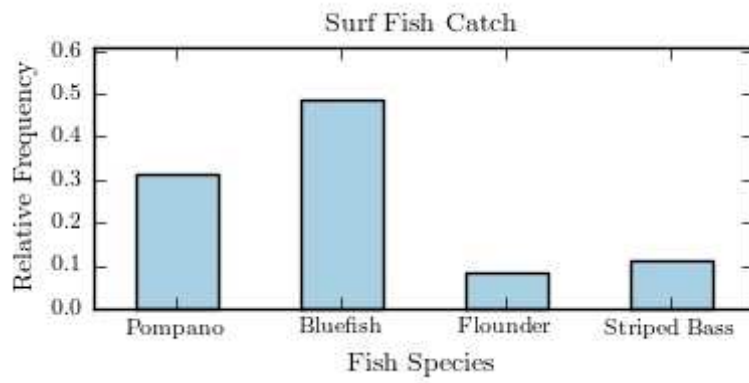
Match this pie chart with its corresponding bar graph.



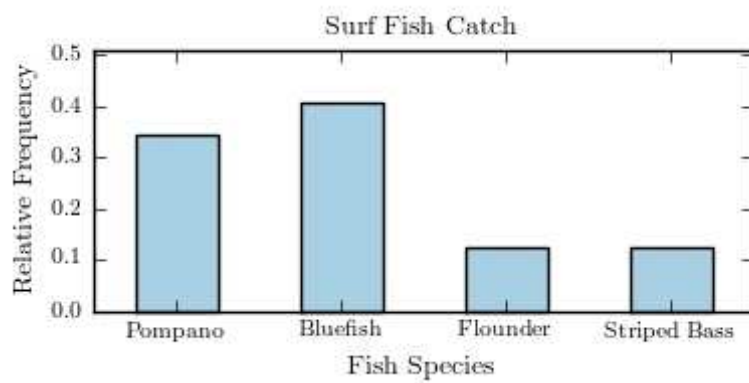
A)



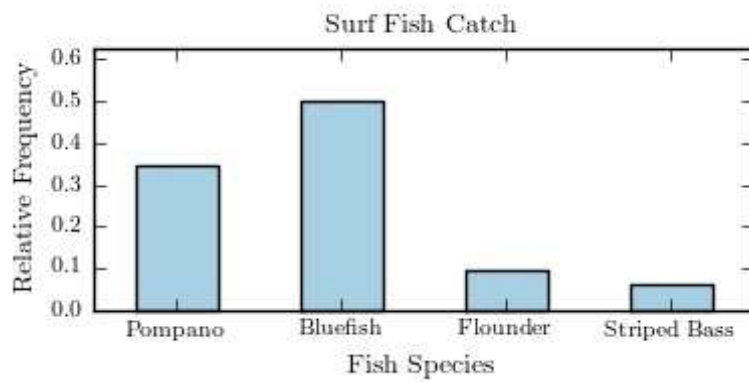
B)



C)

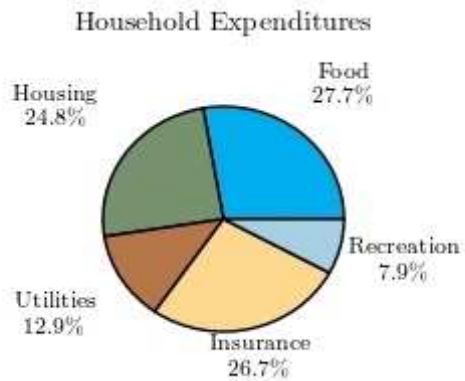


D)



Answer: D

- 78) Following is a pie chart that presents the percentages spent by a certain household on its f 78) _____ largest annual expenditures. What percentage of the money spent was spent on food, hous utilities?



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

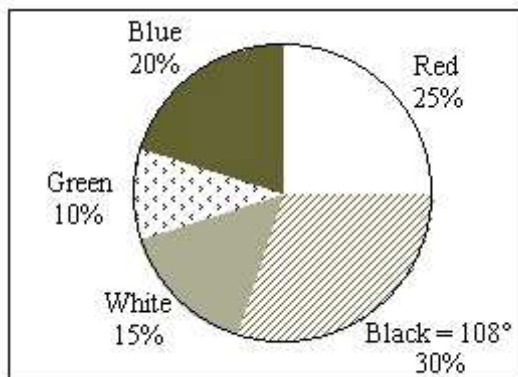
Answer: A

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

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

| <u>Color</u> | <u>Number</u> |
|--------------|---------------|
| Red | 50 |
| Black | 60 |
| White | 30 |
| Green | 20 |
| Blue | 40 |

Answer:



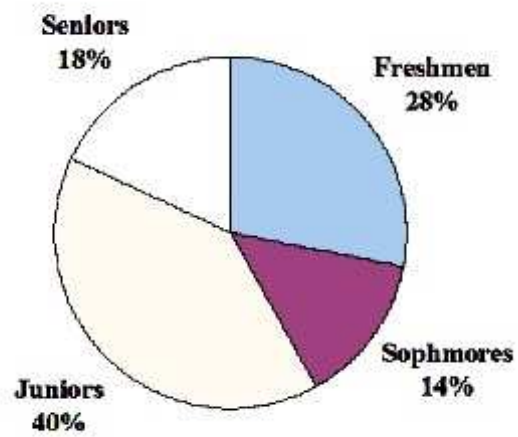
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

80) Construct a pie chart for the following distribution:

80) _____

| <u>Year in School</u> | <u>Number of Students</u> |
|-----------------------|---------------------------|
| Freshmen | 28 |
| Sophomores | 14 |
| Juniors | 40 |
| Seniors | 18 |

Answer:

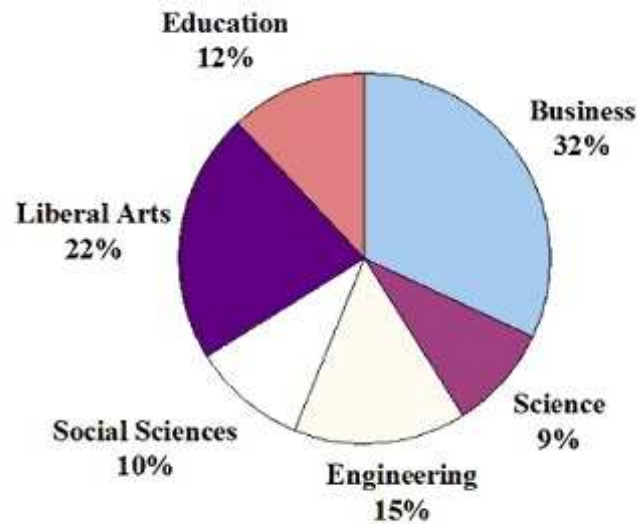


81) Construct a pie chart for the following distribution:

81) _____

| <u>Major</u> | <u>Number of Students</u> |
|-----------------|---------------------------|
| Business | 128 |
| Science | 36 |
| Engineering | 60 |
| Social Sciences | 40 |
| Liberal Arts | 88 |
| Education | 48 |

Answer:



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

82) 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?

82) _____

- A) 240° B) 45° C) 135° D) 120°

Answer: D

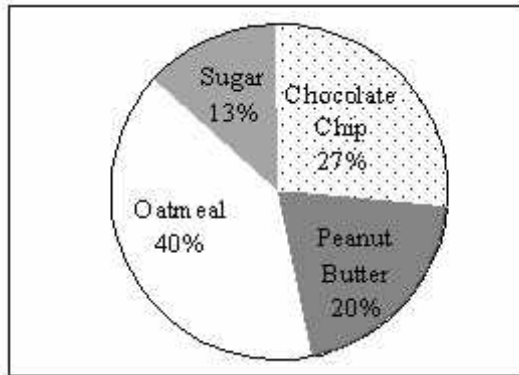
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

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

83) _____

| <u>Cookie Types</u> | <u>Number Sold</u> |
|---------------------|--------------------|
| Chocolate Chip | 20 |
| Peanut Butter | 15 |
| Oatmeal | 30 |
| Sugar | 10 |

Answer:



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

84) 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?

84) _____

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

Answer: A

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

85) _____

- A) True
- B) False

Answer: A

86) A Pareto chart does not have which of the following properties?

86) _____

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

Answer: D

87) A pie graph is not useful in showing which of the following characteristics of a data set?

87) _____

- A) categories that make up the largest proportions of the total
- B) frequency changes over time
- C) relative frequencies for each category in the distribution
- D) categories that make up the smallest proportions of the total

Answer: B

- 88) A time series graph is useful for which of the following purposes? 88) _____
A) representing the changing frequencies of a data category over a period time
B) representing the frequencies of the data, sorted from largest to smallest
C) representing the cumulative frequencies of the data at a specific time
D) representing relative frequencies of categories at a specific time

Answer: A

- 89) A time series graph is useful for detecting trends that occur over the period of time. 89) _____
A) True B) False

Answer: A

- 90) Which graph should be used to represent the frequencies with which certain courses are taken at Highlands Middle School? 90) _____
A) Pareto chart B) pictograph
C) time series graph D) pie graph

Answer: A

- 91) A pie graph would best represent the number of inches of rain that has fallen in Ohio each day for the past 2 months. 91) _____
A) False B) True

Answer: A

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

- 92) The percentages of white, wheat, and rye bread sold at a supermarket each week is best shown using a _____ graph. 92) _____

Answer: pie

- 93) A _____ graph would most appropriately represent the number of students that were enrolled in Statistics for each of the past ten years. 93) _____

Answer: time series

- 94) The scores on a recent statistics exam are shown below. Construct a stem and leaf for the data. 94) _____

98, 73, 64, 69, 86, 89, 77, 86, 91, 73

Answer: 6 | 4 9

7 | 3 3 7

8 | 6 6 9

9 | 1 8

95) Given the following two sets of data, draw a back-to-back stem and leaf plot.

95) _____

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

Answer:

```

      2, 0 | 1 | 0, 3, 6, 8
    7, 6, 4, 2, 22 | 3, 3, 8
      9, 5, 4, 13 | 0, 1, 6, 7
          9 | 4 | 5
  
```

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

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

96) _____

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 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 | 00066 |
| 4 | 36789 |
| 5 | 2348 |
| 6 | 3 |

B)

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

C)

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

D)

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

Answer: D

97) Construct a stem-and-leaf plot for the following data, in which the leaf represents the tent 97) _____

| | | | | | | | | | | | |
|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| 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)

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

B)

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

C)

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

D)

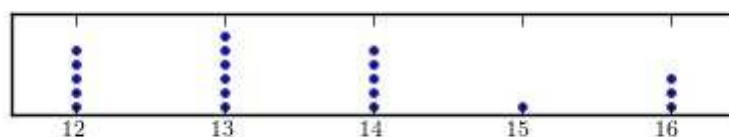
| | |
|----|--------|
| 2 | 45 |
| 3 | |
| 4 | |
| 5 | 4 |
| 6 | 6 |
| 7 | 013347 |
| 8 | 477889 |
| 9 | 333678 |
| 10 | 49 |

Answer: D

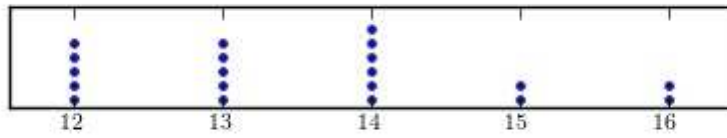
98) Construct a dotplot for the following data. 98) _____

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 16 | 13 | 14 | 12 | 15 | 13 | 14 | 14 | 12 | 12 |
| 14 | 13 | 13 | 14 | 12 | 13 | 15 | 14 | 12 | 16 |

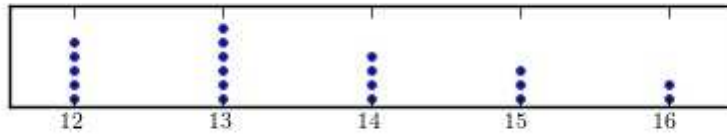
A)



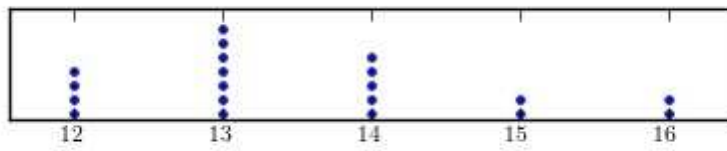
B)



C)



D)



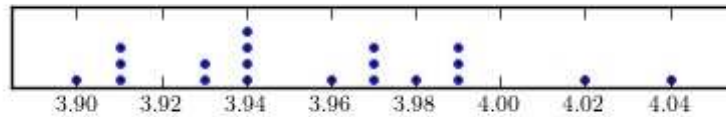
Answer: B

99) Construct a dotplot for the following data.

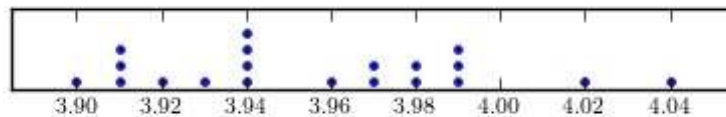
99) _____

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

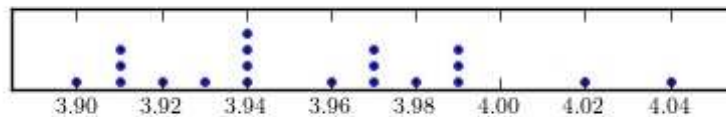
A)



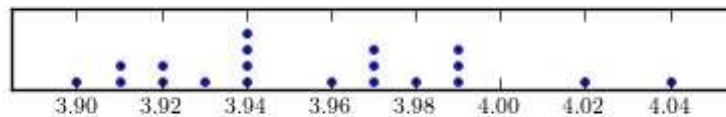
B)



C)



D)

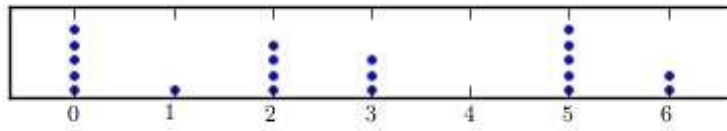


Answer: C

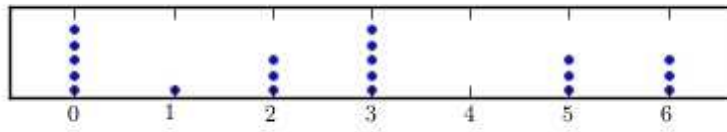
100) Following are the numbers of Dean's List students in a random sample of 20 university co 100) _____
Construct a dotplot for these data.

| | | | | |
|---|---|---|---|---|
| 0 | 1 | 0 | 3 | 3 |
| 2 | 5 | 5 | 0 | 2 |
| 3 | 5 | 6 | 0 | 3 |
| 4 | 5 | 2 | 6 | 0 |

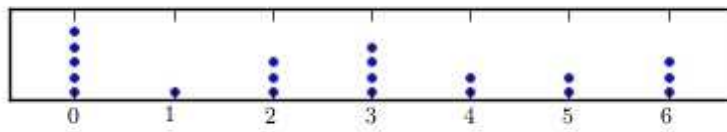
A)



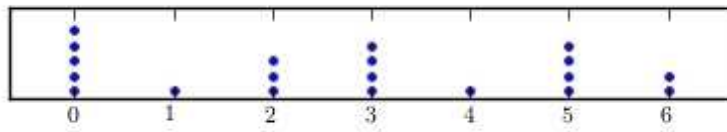
B)



C)



D)

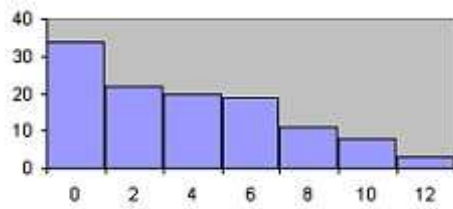


Answer: D

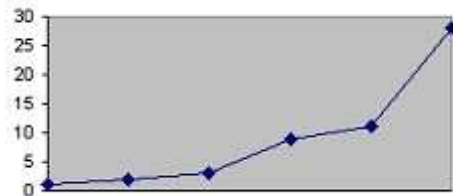
101) Which of the following is a Pareto chart?

101) _____

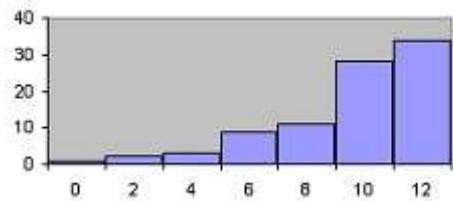
A)



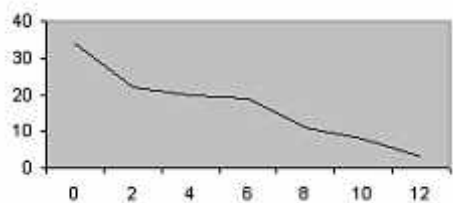
B)



C)



D)



Answer: A

102) 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.

102) _____

A) False

B) True

Answer: B

103) 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 ?

103) _____

A) 80°

B) 100°

C) 60°

D) 50°

Answer: A

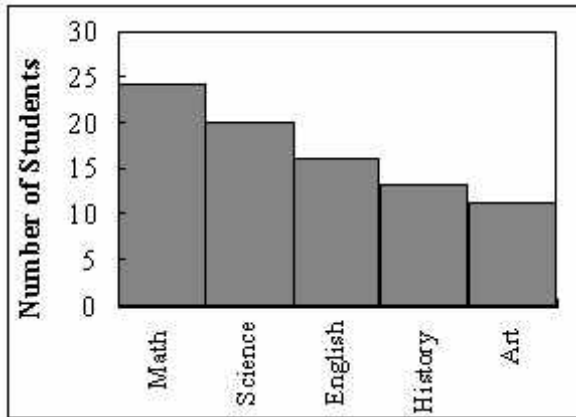
- 104) If a data set showing types of pizza ordered at a particular restaurant indicates 24 out of 72 orders were for pepperoni pizza, how many degrees would be needed to represent pepperoni pizza in a pie chart? 104) _____
- A) 150° B) 60° C) 120° D) 90°

Answer: C

- 105) A Pareto chart is useful for showing percentages of the total at different times. 105) _____
- A) True B) False

Answer: B

- 106) What type of graph is the figure below? 106) _____



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

Answer: B

- 107) Graphs give a visual representation that may enable readers to analyze and interpret data more easily than simply looking at tables of numbers. 107) _____
- A) False B) True

Answer: B

- 108) When making Pareto charts, data should be arranged _____ according to frequency. 108) _____

- A) clockwise B) from largest to smallest
C) from smallest to largest D) with increasing time

Answer: B

- 109) A Pareto chart arranges data from largest to smallest according to frequencies. 109) _____
- A) True B) False

Answer: A

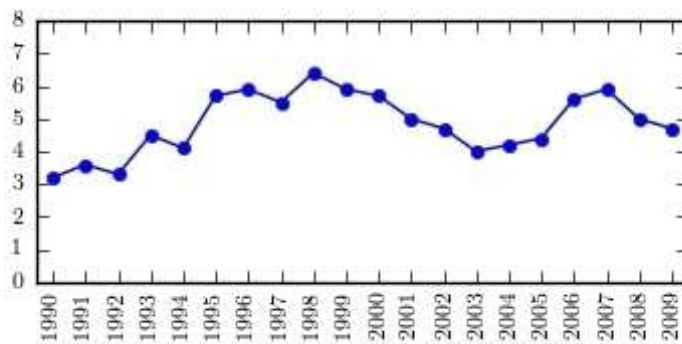
- 110) When two sets of data collected over specific periods of time are compared on the same graph using two lines, it is called a compound time series graph. 110) _____
- A) False B) True

Answer: B

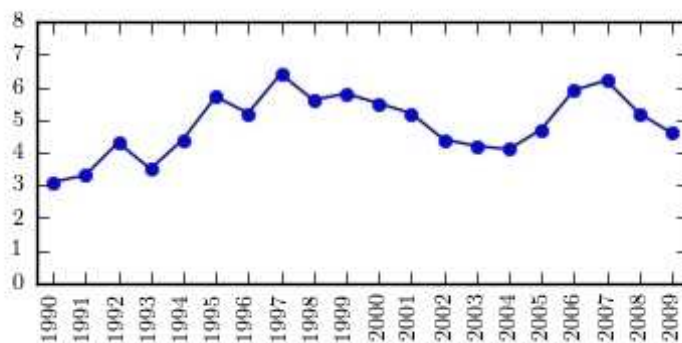
111) The following table presents the rate of population growth of a suburb of Atlanta, Georgia 111) _____
of the years 1990 through 2009. Construct a time-series plot of the growth rate.

| 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 |

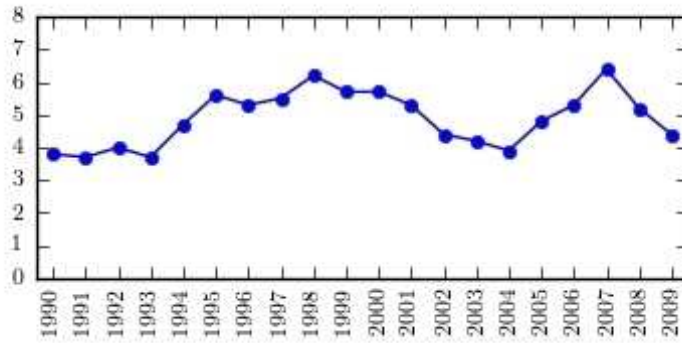
A)



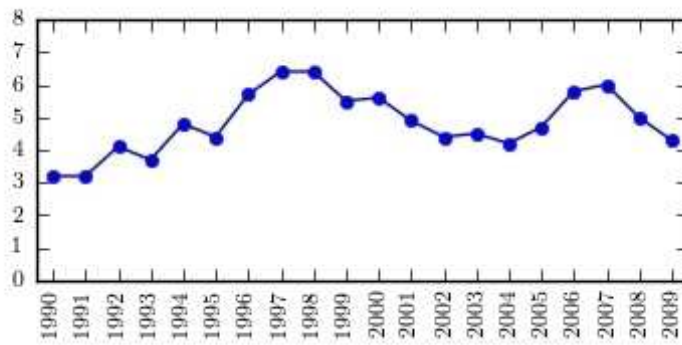
B)



C)



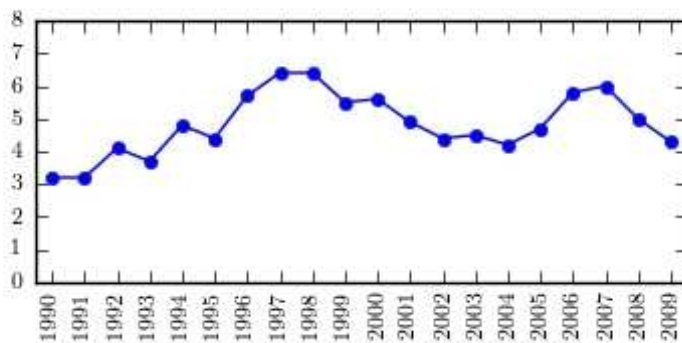
D)



Answer: B

112) 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.

112) _____



A) 6.6%

B) 6.0%

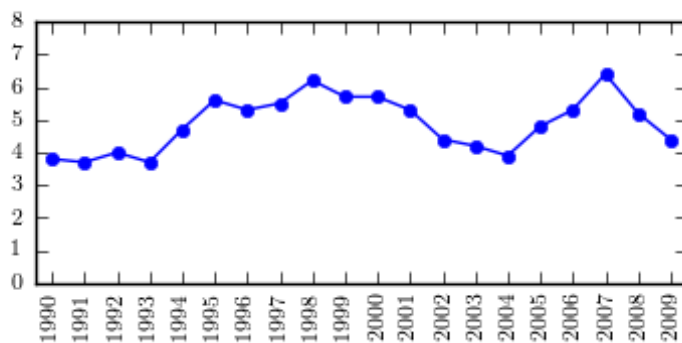
C) 4.9%

D) 7.0%

Answer: B

113) 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.

113) _____



A) about 2.9 percentage points

B) about 2.1 percentage points

C) about 1.4 percentage points

D) about 3.0 percentage points

Answer: B