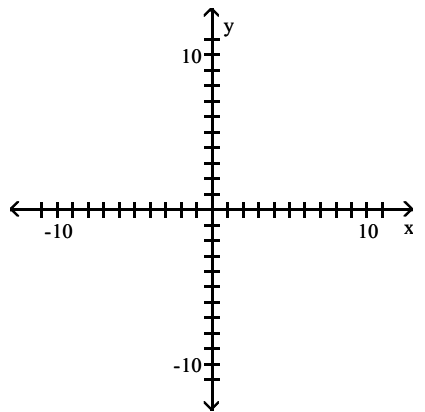
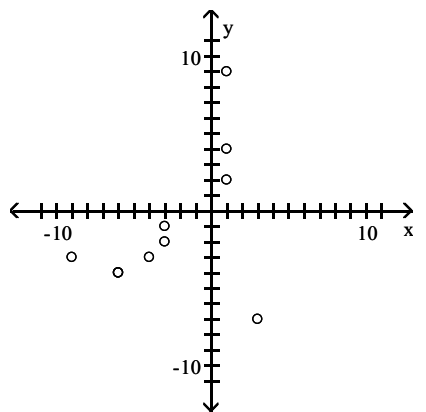


4) x -1 -4 -3 -3 -7 4 2 9 -4 -2
 y -3 -6 -4 -9 3 1 1 1 -6 -3

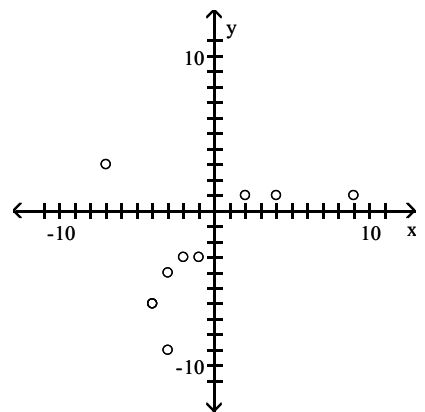
4) _____



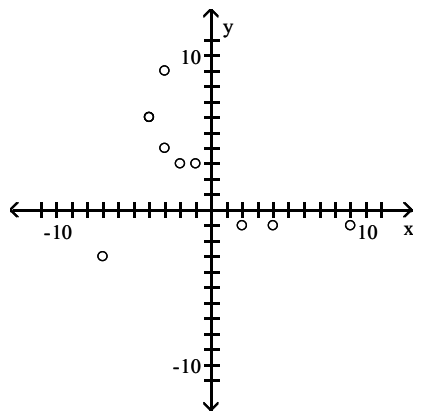
A)



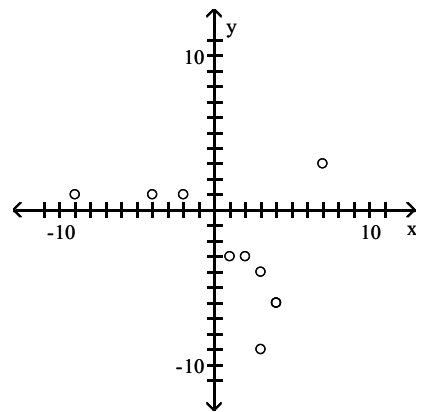
B)



C)



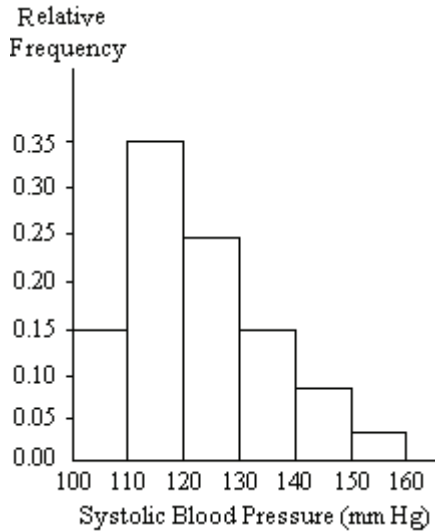
D)



Provide an appropriate response.

- 5) A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure readings were given to the nearest whole number. Approximately what percentage of the people aged 25–40 had a systolic blood pressure reading between 110 and 119 inclusive?

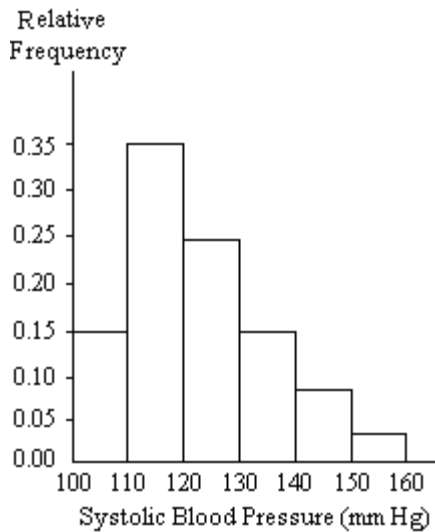
5) _____



- A) 0.35% B) 3.5% C) 30% D) 35%

- 6) A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure readings were given to the nearest whole number. Approximately what percentage of the people aged 25–40 had a systolic blood pressure reading between 110 and 139 inclusive?

6) _____



- A) 75% B) 89% C) 59% D) 39%

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

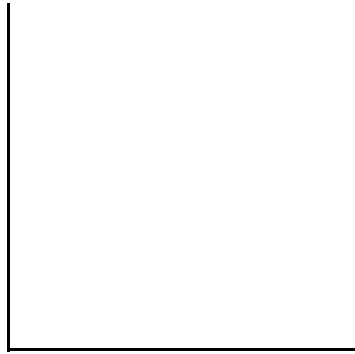
- 7) Describe at least two advantages to using stemplots rather than frequency distributions.

7) _____

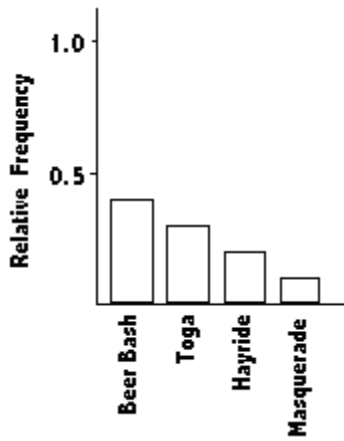
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

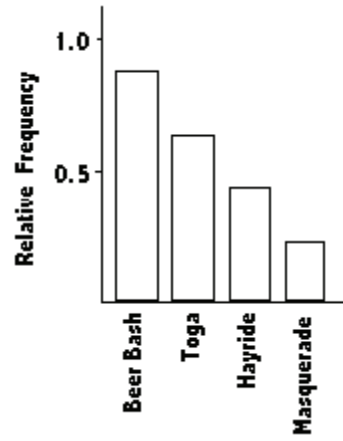
8) The Kappa Iota Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart. 8) _____



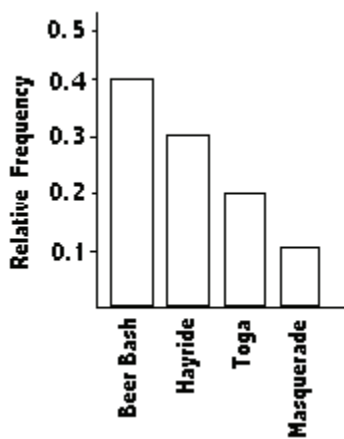
A)



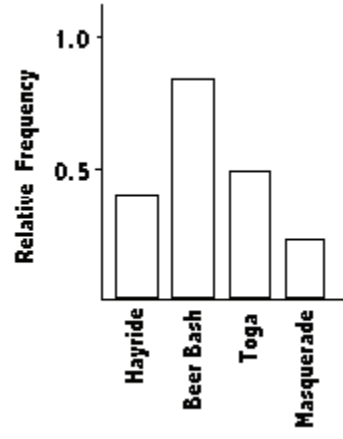
B)



C)



D)

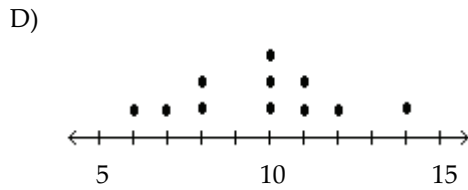
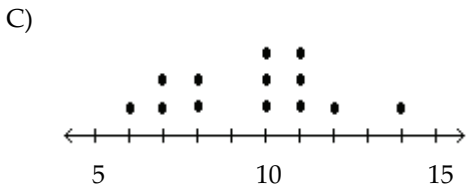
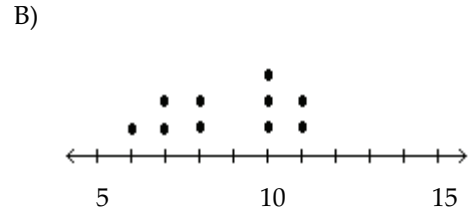
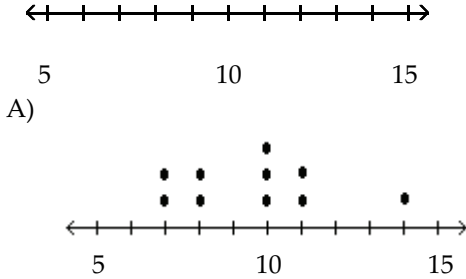


Construct the dotplot for the given data.

9) A store manager counts the number of customers who make a purchase in his store each day. The data are as follows.

10 11 8 14 7 10 10 11 8 7

9) _____

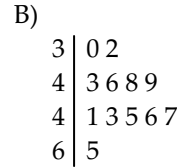
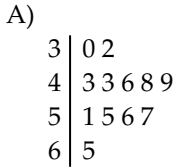


Use the data to create a stemplot.

10) The following data show the number of laps run by each participant in a marathon.

46 65 55 43 51 48 57 30 43 49 32 56

10) _____



Provide an appropriate response.

11) The frequency distribution below summarizes employee years of service for Alpha Corporation. Find the class boundaries for class 26–30.

11) _____

Years of service	Frequency
1–5	5
6–10	20
11–15	25
16–20	10
21–25	5
26–30	3

A) 26.5, 30.5

B) 26.5, 29.5

C) 25.5, 30.5

D) 25.5, 20.5

Construct the cumulative frequency distribution that corresponds to the given frequency distribution.

12)

12) _____

Speed	Number of cars
0-29	4
30-59	16
60-89	60
90-119	20

A)

Speed	Cumulative Frequency
Less than 30	4
Less than 60	20
Less than 90	80
Less than 120	100

B)

Speed	Cumulative Frequency
Less than 30	0.04
Less than 60	0.20
Less than 90	0.80
Less than 120	1.00

C)

Speed	Cumulative Frequency
0-29	4
30-59	20
60-89	80
90-119	100

D)

Speed	Cumulative Frequency
Less than 30	100
Less than 60	80
Less than 90	82
Less than 120	4

Provide an appropriate response.

13) The following frequency distribution analyzes the scores on a math test. Find the class midpoint of scores interval 40-59.

13) _____

Scores	Number of students
40-59	2
60-75	4
76-82	6
83-94	15
95-99	5

A) 50.5

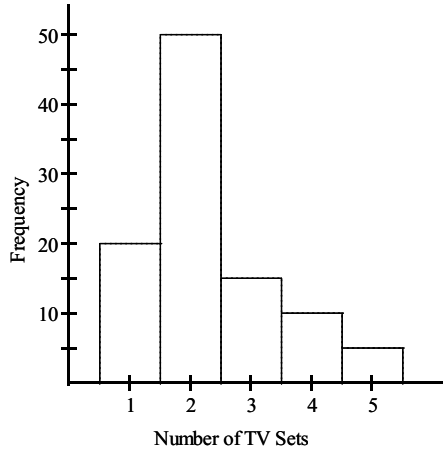
B) 48.5

C) 49.5

D) 49.0

14) The histogram below represents the number of television sets per household for a sample of U.S. households. What is the minimum number of households having the same number of television sets?

14) _____



A) 1

B) 100

C) 20

D) 5

Use the data to create a stemplot.

15) The weights of 22 members of the varsity football team are listed below.

15) _____

144 152 142 151 160 152 131 164 141 153 140
144 175 156 147 133 172 159 135 159 148 171

A)

13		1 3 5
14		0 1 2 4 4 7 8
15		1 2 2 3 6 9 9
16		0 4
17		1 2 5

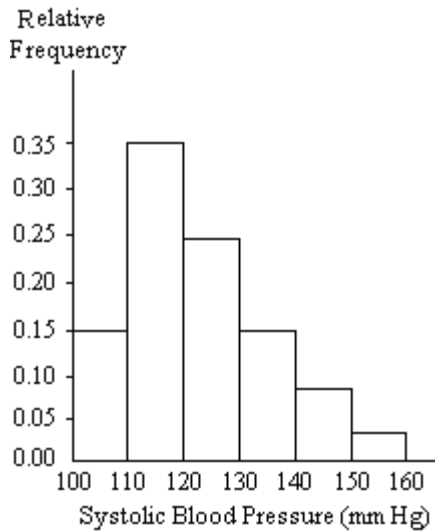
B)

13		1 3 5
14		1 2 2 3 6 9 9
15		0 1 2 4 4 7 8
16		0 4
17		1 2 5

Provide an appropriate response.

- 16) A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure readings were given to the nearest whole number. What class width was used to construct the relative frequency distribution?

16) _____



- A) 11 B) 9 C) 10 D) 100

- 17) The following frequency distribution analyzes the scores on a math test. Find the class boundaries of scores interval 95–99.

17) _____

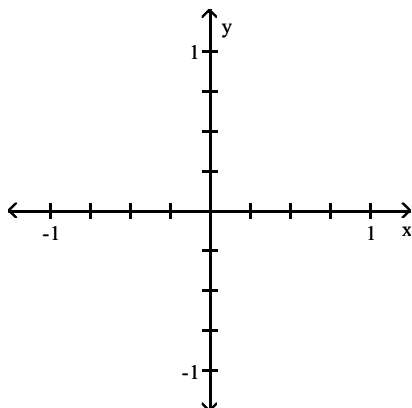
Scores	Number of students
40–59	2
60–75	4
76–82	6
83–94	15
95–99	5

- A) 94.5, 100.5 B) 95.5, 100.5 C) 95.5, 99.5 D) 94.5, 99.5

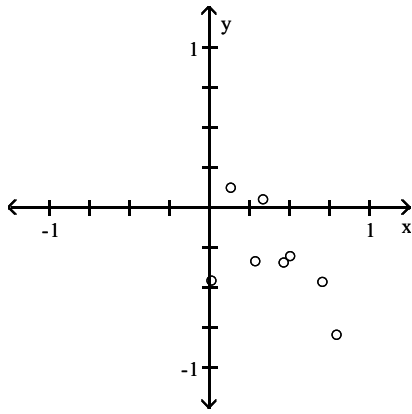
Use the given paired data to construct a scatterplot.

- 18) x 0.51 0.02 0.14 0.29 0.34 0.8 0.47 0.71
y 0.31 0.46 -0.12 0.34 -0.05 0.8 0.35 0.47

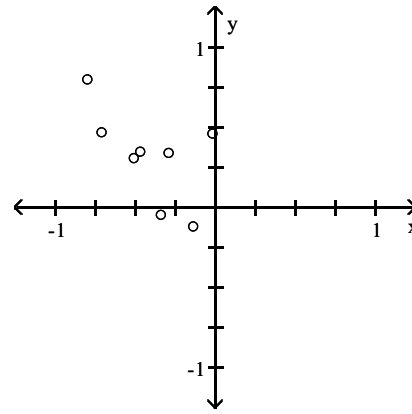
18) _____



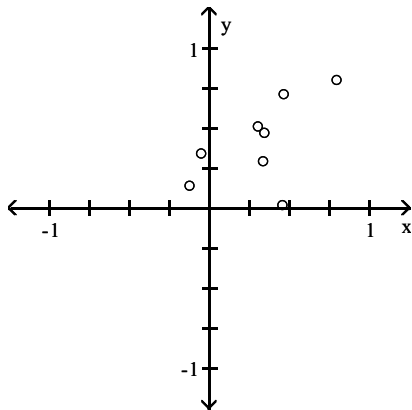
A)



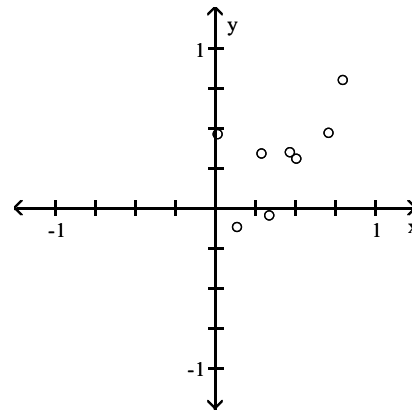
B)



C)



D)



Construct the cumulative frequency distribution that corresponds to the given frequency distribution.

19)

19) _____

Weight (oz)	Number of Stones
1.2-1.6	5
1.7-2.1	2
2.2-2.6	5
2.7-3.1	5
3.2-3.6	13

A)

Weight (oz)	Cumulative Frequency
1.2-1.6	5
1.7-2.1	7
2.2-2.6	12
2.7-3.1	17
3.2-3.6	30

B)

Weight (oz)	Cumulative Frequency
Less than 2.2	7
Less than 3.2	17
Less than 3.7	30

C)

Weight (oz)	Cumulative Frequency
Less than 1.7	5
Less than 2.2	7
Less than 2.7	12
Less than 3.2	17
Less than 3.7	30

D)

Weight (oz)	Cumulative Frequency
Less than 1.7	5
Less than 2.2	7
Less than 2.7	12
Less than 3.2	17
Less than 3.7	28

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

Use the given data to construct a frequency distribution.

- 20) The following figures represent Jennifer's monthly charges for long distance telephone calls for the past twelve months. 20) _____

7.12 10.40 14.70 18.24
10.48 16.47 7.53 15.45
13.04 15.48 13.33 12.56

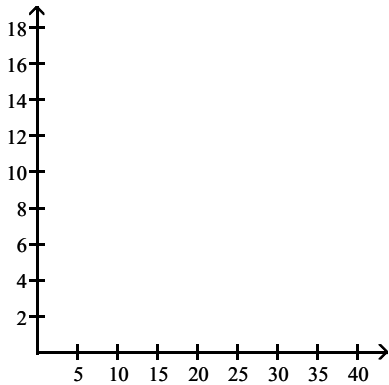
Construct a frequency distribution with 4 classes.

Charges	Frequency

Solve the problem.

- 21) The data shows the roundtrip mileage that 43 randomly selected students drive to school each day. Construct a frequency polygon. Applying a loose interpretation of the requirements for a normal distribution, do the mileages appear to be normally distributed? Why or why not? 21) _____

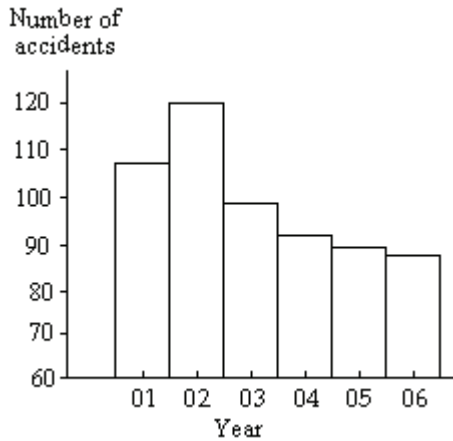
Miles	Frequency
10-14	0
15-19	6
20-24	9
25-29	21
30-34	7



Provide an appropriate response.

22) The graph below shows the number of car accidents occurring in one city in each of the years 2001 through 2006. The number of accidents dropped in 2003 after a new speed limit was imposed. Does the graph distort the data? How would you redesign the graph to be less misleading?

22) _____



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

Use the data to create a stemplot.

23) The attendance counts for this season's basketball games are listed below.

23) _____

227 239 215 219
221 233 229 233
235 228 245 231

A)

21	5 9
22	1 7 8 9
23	1 3 3 5 9
24	5

B)

21	5 7 9
22	1 8 9
23	1 3 3 5 9
24	5

Provide an appropriate response.

24) The frequency distribution below summarizes employee years of service for Alpha Corporation. Find the class midpoint for class 1-5.

24) _____

Years of service	Frequency
1-5	5
6-10	20
11-15	25
16-20	10
21-25	5
26-30	3

A) 3.5

B) 3.0

C) 5.0

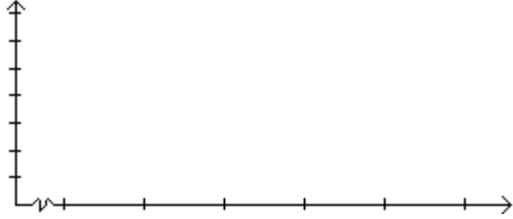
D) 2.5

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

25) In a survey, 26 voters were asked their ages. The results are shown below. Construct a histogram to represent the data (with 5 classes beginning with a lower class limit of 19.5 and a class width of 10). What is the approximate age at the center?

25) _____

43 56 28 63 67 66 52 48 37 51 40 60 62
66 45 21 35 49 32 53 61 53 69 31 48 59



Answer Key

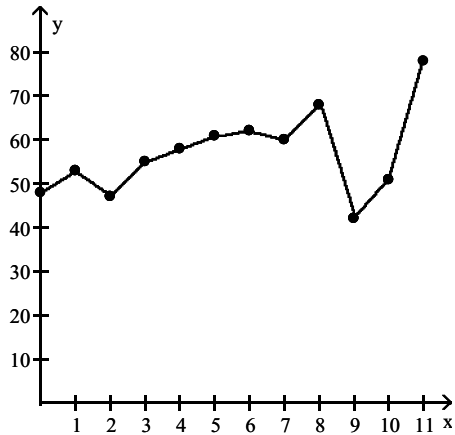
Testname: CHAPTER 2 EXAM A

1) Answers will vary. The answer should include the fact that pie charts are better for showing categories that are parts of a whole, whereas Pareto charts are better for displaying relative importance among categories.

2)

Cause	Frequency
U	9
I	9
F	7
O	5

3) Trend: Answers will vary. Possible answer: Except for a drop in high closing value in 1994, there was a steady rise through 2000, after which there was a sharp drop in 2001 followed by increases through 2003.



4) B

5) D

6) A

7) Answers will vary. Possible answer: The shape of a distribution can readily be seen. The plot can be drawn quicker, since class width need not be calculated.

8) A

9) A

10) A

11) C

12) A

13) C

14) D

15) A

16) C

17) D

18) D

19) C

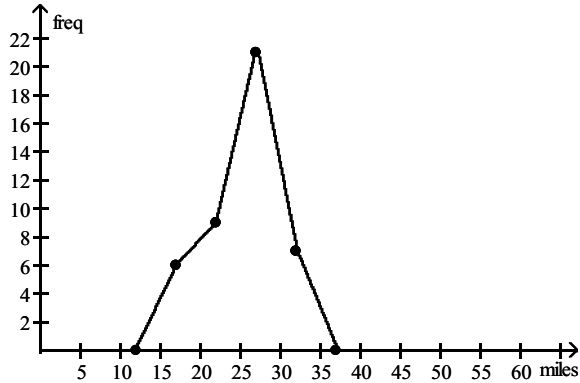
20)

Charges	Frequency
7.00-9.99	2
10.00-12.99	3
13.00-15.99	5
16.00-18.99	2

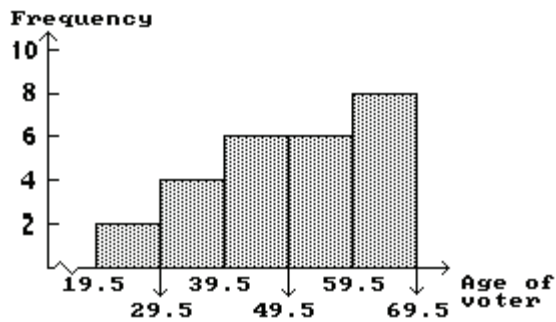
Answer Key

Testname: CHAPTER 2 EXAM A

- 21) The frequency polygon appears to roughly approximate a normal distribution. The frequencies increase to a maximum and then decrease, and the graph is symmetric with the left half being roughly a mirror image of the right half.



- 22) The graph distorts the data because the vertical scale starts at 60 rather than 0, giving the impression of a large difference in the number of accidents, when actually the number of accidents only varies from 90 to 120. To make the graph less misleading, change the vertical scale so that it begins at 0 and increases in increments of 20.
- 23) A
- 24) B
- 25) The approximate age at the center is 50.



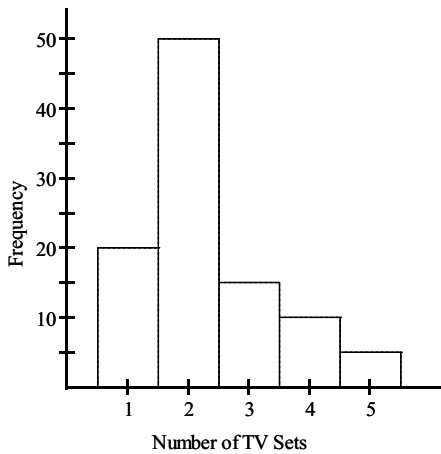
Chapter 2 Exam B

Name _____

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

Provide an appropriate response.

- 1) The histogram below represents the number of television sets per household for a sample of U.S. households. What is the minimum number of households having the same number of television sets? 1) _____



- A) 5 B) 1 C) 20 D) 100

Use the data to create a stemplot.

- 2) The following data consists of the weights (in pounds) of 15 randomly selected women and the weights of 15 randomly selected men. Construct a back-to-back stemplot for the data. 2) _____

Women: 128 150 118 166 142
 122 137 110 175 152
 145 126 139 111 170

Men: 140 153 199 186 169
 136 176 162 196 155
 173 190 141 166 153

A)

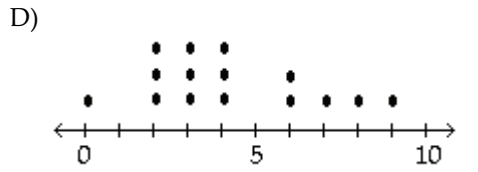
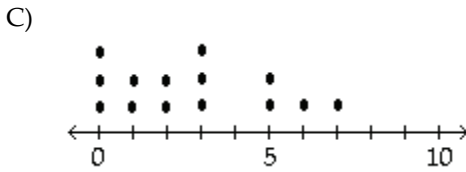
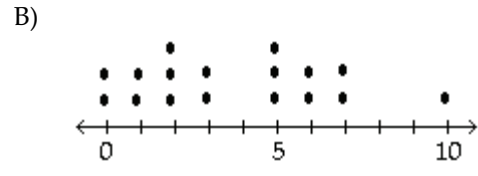
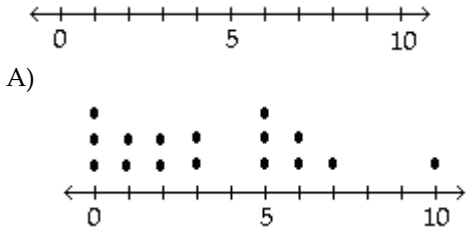
Men	Women
11	0 1 8
12	2 6 8
6	13 7 9
1	0 14 2 5
5	3 3 15 0 2
9	6 2 16 6
6	3 17 0 5
6	18
9	6 0 19

B)

Men	Women
11	0 1
12	2 6 8
6	13 7 9
1	0 14 2 5
5	3 3 15 0 2 4
9	6 2 16 6
6	3 17 0 5
9	6 18
9	6 19

Construct the dotplot for the given data.

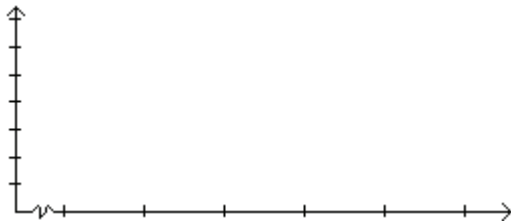
- 3) Attendance records at a school show the number of days each student was absent during the year. 3) _____
 The days absent for each student were as follows.
 0 2 3 4 2 3 4 6 7 2 3 4 6 9 8



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

Provide an appropriate response.

- 4) In a survey, 20 people were asked how many magazines they had purchased during the previous year. The results are shown below. Construct a histogram to represent the data. 4) _____
 Use 4 classes with a class width of 10, and begin with a lower class limit of -0.5. What is the approximate amount at the center?
 6 15 3 36 25 18 12 18 5 30
 24 7 0 22 33 24 19 4 12 9



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

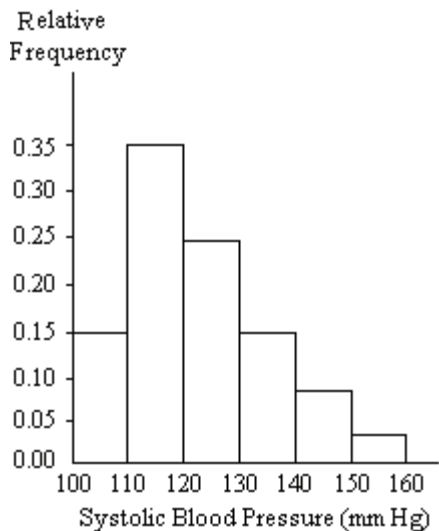
- 5) The frequency distribution below summarizes the home sale prices in the city of Summerhill for the month of June. Determine the width of each class. 5) _____

(Sale price in thousand \$)	Frequency
80.0 - 110.9	2
111.0 - 141.9	5
142.0 - 172.9	7
173.0 - 203.9	10
204.0 - 234.9	3
235.0 - 265.9	1

- A) 61 B) 31 C) 28 D) 30

6) A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure readings were given to the nearest whole number. Approximately what percentage of the people aged 25–40 had a systolic blood pressure reading between 110 and 139 inclusive?

6) _____



- A) 59% B) 39% C) 89% D) 75%

7) The following frequency distribution analyzes the scores on a math test. Find the class midpoint of scores interval 95–99.

7) _____

Scores	Number of students
40–59	2
60–75	4
76–82	6
83–94	15
95–99	5

- A) 97.5 B) 97.0 C) 96.5 D) 98.0

Use the data to create a stemplot.

8) The ages of the 45 members of a track and field team are listed below. Construct an expanded stemplot with about 8 rows.

8) _____

21 18 42 35 32 21 44 25 38 48 14 19 23 22 28
 32 34 27 31 17 16 41 37 22 24 33 32 21 26 30
 22 27 32 30 20 18 17 21 15 26 36 31 40 16 25

A)

```

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

B)

```

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

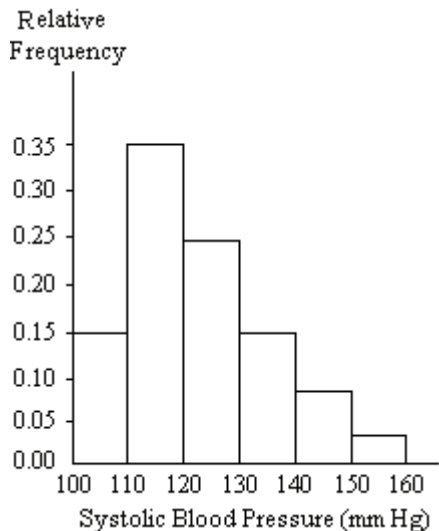
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 9) Suppose that a data set has a minimum value of 24 and a maximum of 79 and that you want 5 classes. Explain how to find the class width for this frequency table. What happens if you mistakenly use a class width of 11 instead of 12? 9) _____

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

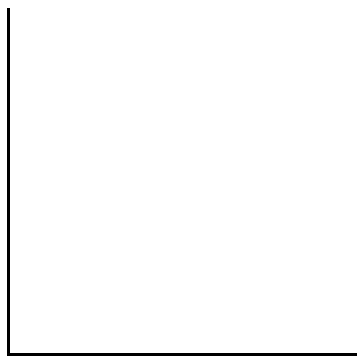
- 10) A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure readings were given to the nearest whole number. Approximately what percentage of the people aged 25–40 had a systolic blood pressure reading between 110 and 119 inclusive? 10) _____



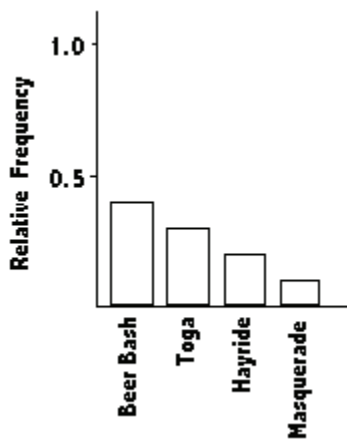
- A) 35% B) 0.35% C) 3.5% D) 30%

Solve the problem.

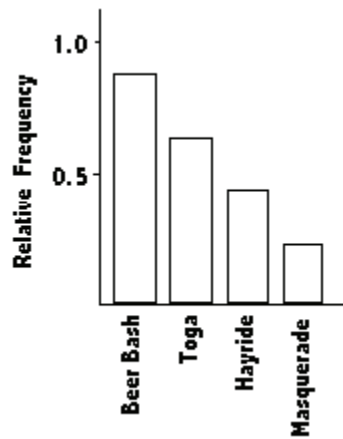
- 11) The Kappa Iota Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart. 11) _____



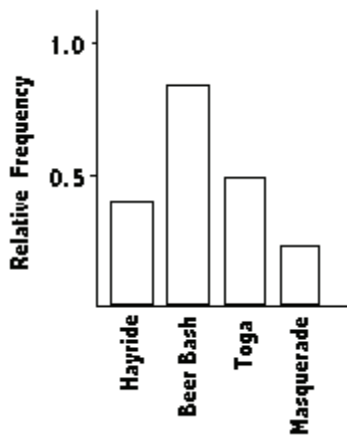
A)



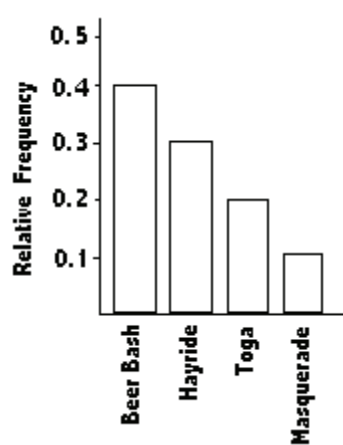
B)



C)



D)



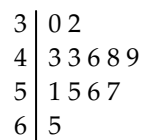
Use the data to create a stemplot.

12) The following data show the number of laps run by each participant in a marathon.

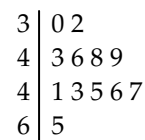
46 65 55 43 51 48 57 30 43 49 32 56

12) _____

A)



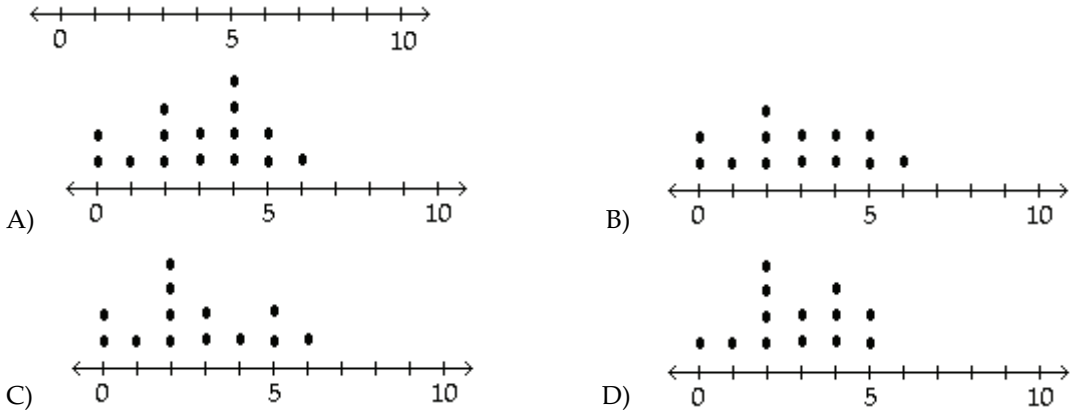
B)



Construct the dotplot for the given data.

- 13) A manufacturer records the number of errors each work station makes during the week. The data are as follows. 13) _____

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



Provide an appropriate response.

- 14) The following frequency distribution analyzes the scores on a math test. Find the class boundaries of scores interval 40–59. 14) _____

Scores	Number of students
40–59	2
60–75	4
76–82	6
83–94	15
95–99	5

- A) 39.5, 59.5 B) 40.5, 59.5 C) 39.5, 58.5 D) 40.5, 58.5

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

Use the given data to construct a frequency distribution.

- 15) Kevin asked some of his friends how many hours they had worked during the previous week at their after-school jobs. The results are shown below. 15) _____

5 6 5 4 5 5 9 8 5 3 7 6
6 7 5 6 7 5 6 8 6 7 8 4

Construct a frequency distribution. Use 4 classes, a class width of 2 hours, and a lower limit of 3 for class 1.

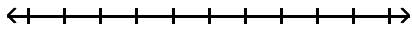
Hours	Frequency

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

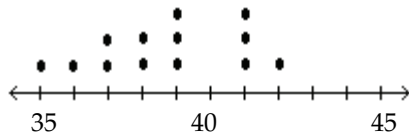
Construct the dotplot for the given data.

16) The following data represent the number of cars passing through a toll booth during a certain time period over a number of days. 16) _____

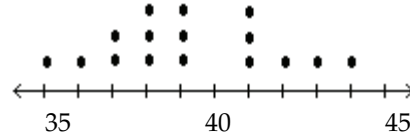
38 39 37 37 44 38 41 38 39 35 42 39 43 37 41



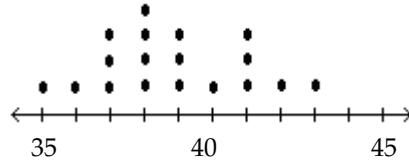
35 40 45
A)



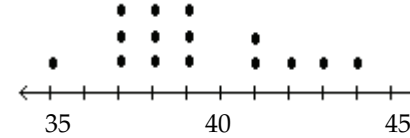
B)



C)



D)



Provide an appropriate response.

17) The frequency distribution below summarizes employee years of service for Alpha Corporation. 17) _____
Determine the width of each class.

Years of service	Frequency
1-5	5
6-10	20
11-15	25
16-20	10
21-25	5
26-30	3

A) 5

B) 6

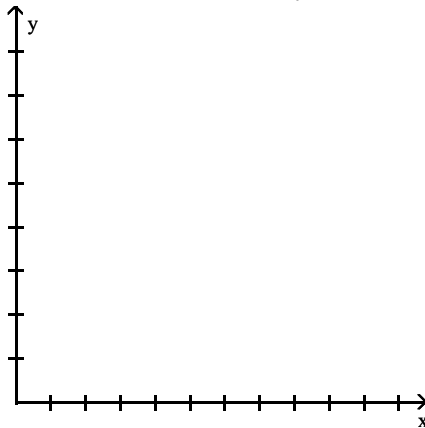
C) 4

D) 10

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

18) Use the high closing values of Naristar Inc. stock from the years 1992 - 2003 to construct a time-series graph. (Let $x = 0$ represent 1992 and so on.) Identify a trend. 18) _____

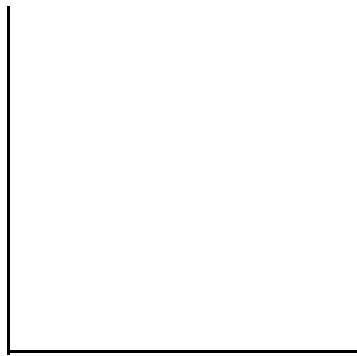
Year	High	Year	High
1992	48	1998	62
1993	53	1999	60
1994	47	2000	68
1995	55	2001	42
1996	58	2002	51
1997	61	2003	78



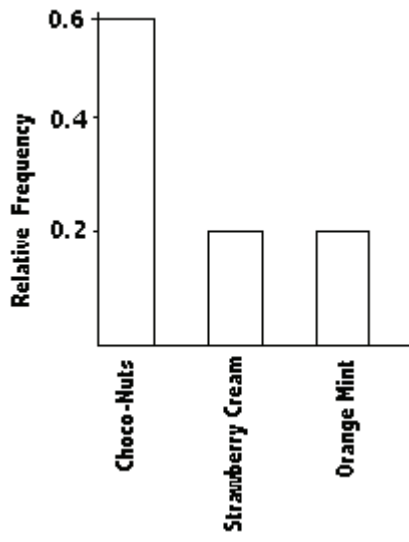
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

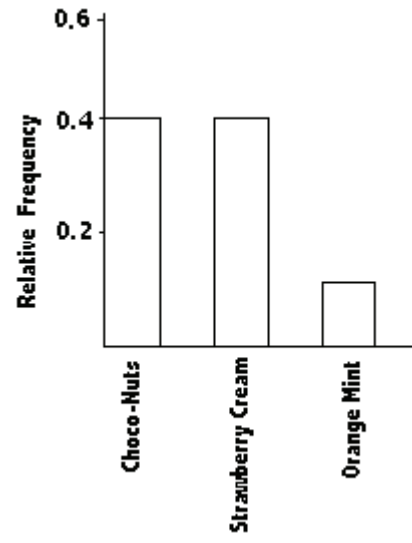
19) Wagenlucht Ice Cream Company is always trying to create new flavors of ice cream. They are market testing three kinds to find out which one has the best chance of becoming popular. They give small samples of each to 20 people at a grocery store. 4 ice cream tasters preferred the Strawberry Cream, 12 preferred Choco-Nuts, and 4 loved the Orange Mint. Construct a Pareto chart to represent these preferences. Choose the vertical scale so that the relative frequencies are represented. 19) _____



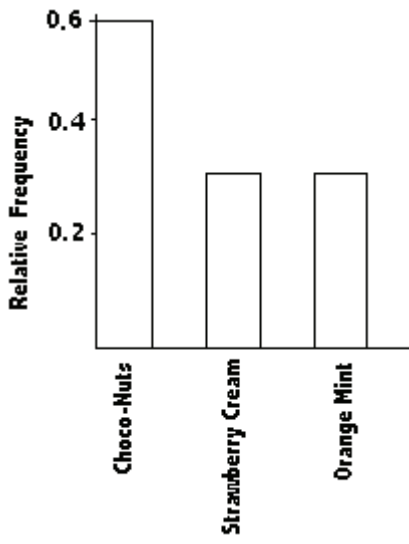
A)



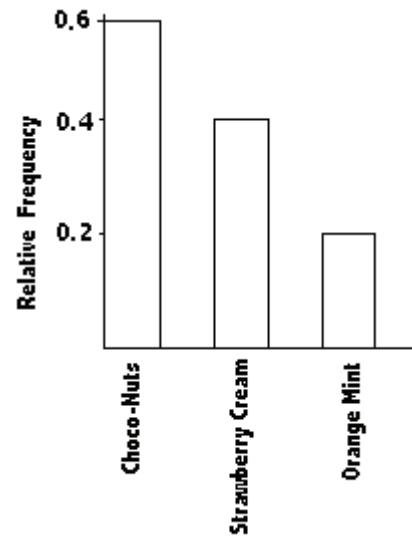
B)



C)



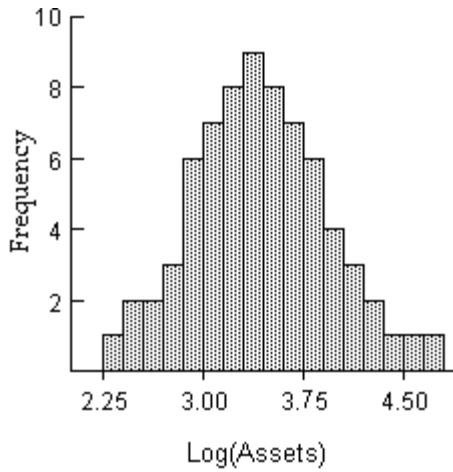
D)



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

Provide an appropriate response.

- 20) The histogram below shows the distribution of the assets (in millions of dollars) of 71 companies. Does the distribution appear to be normal? 20) _____



Use the given data to construct a frequency distribution.

- 21) A school district performed a study to find the main causes leading to its students dropping out of school. Thirty cases were analyzed, and a primary cause was assigned to each case. The causes included unexcused absences (U), illness (I), family problems (F), and other causes (O). The results for the thirty cases are listed below: 21) _____

U U U I F O O U I F
 F O U I I F I I O U
 I F F U U I I O F U

Construct a table summarizing the frequency distribution of the primary causes leading to student dropout.

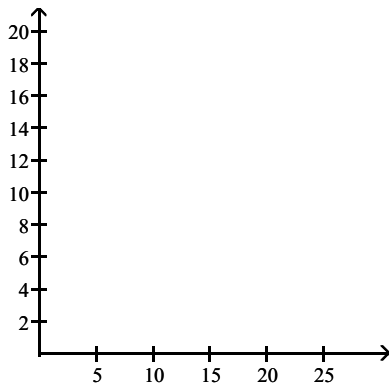
Cause	Frequency

Solve the problem.

- 22) The frequency table below shows the amount of weight loss during the first month of a diet program for a group of men. Constructing a frequency polygon. Applying a loose interpretation of the requirements for a normal distribution, do the pounds of weight loss appear to be normally distributed? Why or why not?

22) _____

Weight (lb)	Frequency
5-7	2
8-10	9
11-13	18
14-16	13
17-19	4
20-22	1



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

Provide an appropriate response.

- 23) The frequency distribution below summarizes the home sale prices in the city of Summerhill for the month of June. Determine the class midpoint for class 235.0–265.9.

23) _____

(Sale price in thousand \$)	Frequency
80.0 - 110.9	2
111.0 - 141.9	5
142.0 - 172.9	7
173.0 - 203.9	10
204.0 - 234.9	3
235.0 - 265.9	1

A) 250.40

B) 250.55

C) 250.45

D) 250.50

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

- 24) Explain in your own words why a bar graph can be misleading if one or both of the scales begin at some value other than zero.

24) _____

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

Construct the cumulative frequency distribution that corresponds to the given frequency distribution.

25)

25) _____

Speed	Number of cars
0-29	4
30-59	16
60-89	60
90-119	20

A)

Speed	Cumulative Frequency
Less than 30	0.04
Less than 60	0.20
Less than 90	0.80
Less than 120	1.00

B)

Speed	Cumulative Frequency
Less than 30	4
Less than 60	20
Less than 90	80
Less than 120	100

C)

Speed	Cumulative Frequency
0-29	4
30-59	20
60-89	80
90-119	100

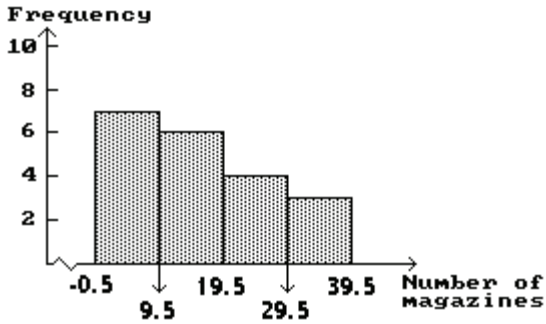
D)

Speed	Cumulative Frequency
Less than 30	100
Less than 60	80
Less than 90	82
Less than 120	4

Answer Key

Testname: CHAPTER 2 EXAM B

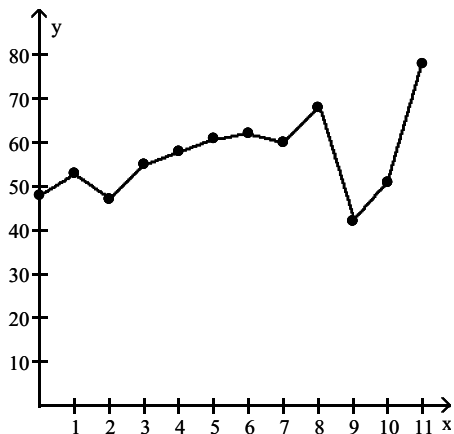
- 1) A
- 2) A
- 3) D
- 4) The approximate amount at the center is 16 magazines.



- 5) B
- 6) D
- 7) B
- 8) A
- 9) Since the range is $79 - 24 = 55$, and 55 divided by 5 equals 11, a whole number, the class width has to be widened from 11 to 12. If the class width was 11 data values equal to 79 would not be included in the frequency distribution.
- 10) A
- 11) A
- 12) A
- 13) C
- 14) A
- 15)

Hours	Frequency
3-4	3
5-6	13
7-8	7
9-10	1

- 16) D
- 17) A
- 18) Trend: Answers will vary. Possible answer: Except for a drop in high closing value in 1994, there was a steady rise through 2000, after which there was a sharp drop in 2001 followed by increases through 2003.



- 19) A

Answer Key

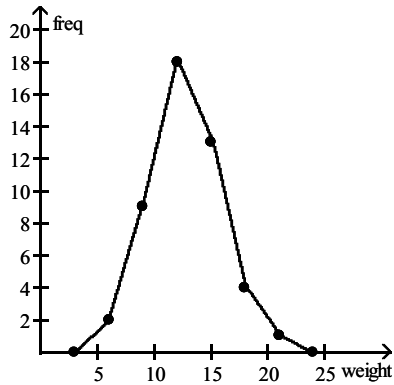
Testname: CHAPTER 2 EXAM B

20) Yes, it appears to be normal.

21)

Cause	Frequency
U	9
I	9
F	7
O	5

22) The frequency polygon appears to roughly approximate a normal distribution. The frequencies increase to a maximum and then decrease, and the graph is symmetric with the left half being roughly a mirror image of the right half.



23) C

24) A bar graph with these characteristics exaggerates the differences in the data.

25) B

Chapter 3 Exam A

Name _____

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

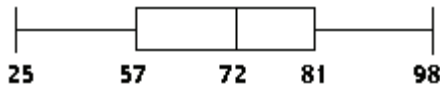
Construct a boxplot for the given data. Include values of the 5-number summary in all boxplots.

1) The test scores of 40 students are listed below. Construct a boxplot for the data set.

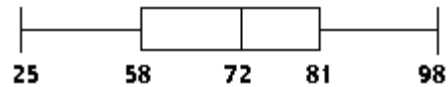
1) _____

25 35 43 44 47 48 54 55 56 57
59 62 63 65 66 68 69 69 71 72
72 73 74 76 77 77 78 79 80 81
81 82 83 85 89 92 93 94 97 98

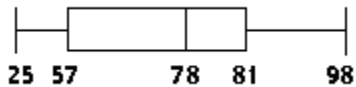
A)



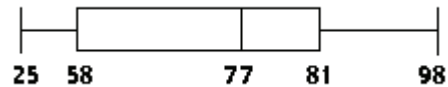
B)



C)



D)



Find the variance for the given data. Round your answer to one more decimal place than the original data.

2) 7 7 2 5 1

2) _____

A) 11.8

B) 7.7

C) 7.8

D) 6.2

Find the standard deviation for the given sample data. Round your answer to one more decimal place than is present in the original data.

3) 18 18 18 9 15 5 10 5 15

3) _____

A) 5.1

B) 5.4

C) 1.6

D) 5.8

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

Provide an appropriate response.

4) Explain how two data sets could have equal means and modes but still differ greatly. Give an example with two data sets to illustrate.

4) _____

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

Find the indicated measure.

5) The test scores of 40 students are listed below. Find P_{56} .

5) _____

30 35 43 44 47 48 54 55 56 57
59 62 63 65 66 68 69 69 71 72
72 73 74 76 77 77 78 79 80 81
81 82 83 85 89 92 93 94 97 98

A) 73.5

B) 22.4

C) 74

D) 73

Solve the problem.

- 6) The geometric mean is often used in business and economics for finding average rates of change, average rates of growth, or average ratios. Given n values (all positive), the geometric mean is the n th root of their product. The average growth factor for money compounded at annual interest rates of 34%, 26%, 24%, and 22% can be found by computing the geometric mean of 1.34, 1.26, 1.24, and 1.22. Find that average growth factor. 6) _____
- A) 1.5982 B) 0.0187 C) 1.2642 D) 0.6386

Find the indicated measure.

- 7) Use the given sample data to find Q_3 . 7) _____
- 49 52 52 52 74 67 55 55
- A) 67.0 B) 55.0 C) 6.0 D) 61.0

Solve the problem.

- 8) A student earned grades of 84, 78, 84, and 72 on her four regular tests. She earned a grade of 78 on the final exam and 86 on her class projects. Her combined homework grade was 87. The four regular tests count for 40% of the final grade, the final exam counts for 30%, the project counts for 10%, and homework counts for 20%. What is her weighted mean grade? Round to one decimal place. 8) _____
- A) 81.3 B) 80.2 C) 81.2 D) 82.1
- 9) A student earned grades of B, B, A, C, and D. Those courses had these corresponding numbers of credit hours: 4, 5, 1, 5, 4. The grading system assigns quality points to letter grades as follows: A = 4, B = 3, C = 2, D = 1, and F = 0. Compute the grade point average (GPA) and round the result to two decimal places. 9) _____
- A) 9.00 B) 3.46 C) 2.37 D) 1.37

Find the variance for the given data. Round your answer to one more decimal place than the original data.

- 10) To get the best deal on a microwave oven, Jeremy called six appliance stores and asked the cost of a specific model. The prices he was quoted are listed below: 10) _____
- \$663 \$273 \$410 \$622 \$174 \$374
- A) 36,838.2 dollars² B) 36,838.3 dollars²
- C) 30,698.6 dollars² D) 1,207,582.7 dollars²

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

Provide an appropriate response.

- 11) The median of a data set is always/sometimes/never (select one) one of the data points in a set of data. Explain your answer with brief examples. 11) _____

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

- 12) Human body temperatures have a mean of 98.20° F and a standard deviation of 0.62°. Sally's temperature can be described by $z = -1.5$. What is her temperature? Round your answer to the nearest hundredth. 12) _____
- A) 97.27°F B) 99.13°F C) 96.70°F D) 95.79°F

Find the mean for the given sample data. Unless indicated otherwise, round your answer to one more decimal place than is present in the original data values.

- 13) Listed below are the amounts of time (in months) that the employees of a restaurant have been working at the restaurant. Find the mean. 13) _____

1 5 6 8 11 14 17 46 61 90 99 126 143 167

- A) 31.5 months B) 61.1 months C) 56.7 months D) 52.9 months

Find the median for the given sample data.

- 14) The number of vehicles passing through a bank drive-up line during each 15-minute period was recorded. The results are shown below. Find the median number of vehicles going through the line in a fifteen-minute period. 14) _____

25 27 25 28

28 25 30 27

35 31 31 29

24 31 25 20

15 27 27 27

- A) 26.85 vehicles B) 28 vehicles C) 27 vehicles D) 31 vehicles

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

Find the mean and median for each of the two samples, then compare the two sets of results.

- 15) A comparison is made between summer electric bills of those who have central air and those who have window units. 15) _____

	May	June	July	Aug	Sept
Central	\$32	\$64	\$80	\$90	\$65
Window	\$15	\$84	\$99	\$120	\$40

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

Find the range for the given sample data.

- 16) The prices (in dollars) of 12 electric smoothtop ranges are listed below. 16) _____

865 1010 655 565 1465 1110

710 765 820 1310 555 1065

- A) \$900 B) \$920 C) \$930 D) \$910

Find the coefficient of variation for each of the two sets of data, then compare the variation. Round results to one decimal place.

- 17) The customer service department of a phone company is experimenting with two different systems. On Monday they try the first system which is based on an automated menu system. On Tuesday they try the second system in which each caller is immediately connected with a live agent. A quality control manager selects a sample of seven calls each day. He records the time for each customer to have his or her question answered. The times (in minutes) are listed below. 17) _____
- Automated Menu: 11.7 7.4 3.9 2.9 9.2 6.3 5.5
 Live agent: 6.2 2.9 4.4 4.1 3.4 5.2 3.7
- A) Automated Menu: 45.4%
 Live agent: 26.3%
 There is substantially more variation in the times for the automated menu system.
- B) Automated Menu: 48.8%
 Live agent: 28.3%
 There is substantially more variation in the times for the automated menu system.
- C) Automated Menu: 47.1%
 Live agent: 27.3%
 There is substantially more variation in the times for the automated menu system.
- D) Automated Menu: 25.2%
 Live agent: 41.5%
 There is substantially more variation in the times for the live agent.

Find the median for the given sample data.

- 18) A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below. 18) _____
- 81 71 202 113 269 248 242
- Find the median number of newspapers sold.
- A) 202 newspapers B) 113 newspapers
 C) 175 newspapers D) 242 newspapers

Solve the problem. Round results to the nearest hundredth.

- 19) Scores on a test have a mean of 66 and a standard deviation of 9. Michelle has a score of 57. 19) _____
- Convert Michelle's score to a z-score.
- A) 1 B) -9 C) 9 D) -1

Find the standard deviation for the given sample data. Round your answer to one more decimal place than is present in the original data.

- 20) 22.6 16.1 36.1 36.0 23.8 20.3 20) _____
- A) 36.1 B) 4347.7 C) 3999.0 D) 8.35

Provide an appropriate response.

- 21) When finding percentiles, if the locator L is not a whole number, one procedure is to interpolate so that a locator of 23.75, for example, leads to a value that is 3/4 of the way between the 23rd and 24th scores. Use this method of interpolation to find P_{75} for the set of test scores below. 21) _____

51	54	64	68	72	74
76	83	94	94	99	

A) 83 B) 88.5 C) 85.75 D) 94

- 22) If all the values in a data set are converted to z-scores, the shape of the distribution of the z-scores will be the same as the distribution of the original data. True or false? 22) _____
- A) False B) True

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

- 23) The textbook defines unusual values as those data points with z scores less than $z = -2.00$ or z scores greater than $z = 2.00$. Comment on this definition with respect to Chebyshev's theorem; refer specifically to the percent of scores which would be defined as unusual according to Chebyshev's theorem. 23) _____

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

Find the coefficient of variation for each of the two sets of data, then compare the variation. Round results to one decimal place.

- 24) Compare the variation in heights to the variation in weights of thirteen-year old girls. The heights (in inches) and weights (in pounds) of nine randomly selected thirteen-year old girls are listed below. 24) _____

Heights (inches): 58.7 61.4 62.1 64.7 60.1 58.3 64.6 63.7 66.1
Weights (pounds): 89 97 93 119 96 90 123 98 139

- A) Heights: 4.3%
Weights: 16.0%
There is substantially more variation in the weights than in the heights of the girls.
- B) Heights: 11.8%
Weights: 6.3%
There is substantially more variation in the heights than in the weights of the girls.
- C) Heights: 4.1%
Weights: 15.2%
There is substantially more variation in the weights than in the heights of the girls.
- D) Heights: 4.5%
Weights: 16.8%
There is substantially more variation in the weights than in the heights of the girls.

Find the mode(s) for the given sample data.

- 25) Last year, nine employees of an electronics company retired. Their ages at retirement are listed below. 25) _____

51 61 62 57 50 67 68 58 53

- A) 58.6 yr
B) no mode
C) 51 yr, 61 yr, 62 yr, 57 yr, 50 yr, 67 yr, 68 yr, 58 yr, 53 yr
D) 58 yr