

Name _____

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

Provide an appropriate response.

- 1) Suppose that a data set has a minimum value of 28 and a max of 73 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 9 instead of 10?

Answer: Answers will vary.

- 2) Histograms and Pareto charts are both bar charts. What is the significant difference between the two?

Answer: Answers will vary.

- 3) Explain the difference between a frequency distribution and a relative frequency distribution. Comment on the differences on the vertical axis scale. Given the same data set and the same classes, will the shapes of the frequency distribution and the relative frequency distribution be the same? You may draw a diagram to support your answer.

Answer: Answers will vary.

- 4) Suppose you are comparing frequency data for two different groups, 25 managers and 150 blue collar workers. Why would a relative frequency distribution be better than a frequency distribution?

Answer: Answers will vary.

- 5) One purpose of displaying data graphically is to provide clues about trends. The given values are weights (ounces) of steaks listed on a restaurant menu as "20 ounce porterhouse" steaks. The weights are supposed to be 21 ounces because they supposedly lose an ounce when cooked. Create a frequency distribution with 5 classes. Based on your distribution, comment on the advertised "20 ounce" steaks.

17 20 21 18 20 20 20 18 19 19 20 19 21 20 18 20 20 19 18 19

Answer: Answers will vary.

- 6) Create an example displaying data in a pie chart. Display the same data in a Pareto chart. Which graph is more effective? List at least two reasons in support of your choice.

Answer: Answers will vary.

- 7) Draw one histogram to illustrate bell-shaped data, another for uniform data, and a third for skewed data. Which of these shapes matches the histogram for the first 100 digits of π ? Does changing the number of classes alter your answer? (Below is the frequency table for the first 100 digits of π .)

0	1	2	3	4	5	6	7	8	9
8	8	12	11	10	8	9	8	12	14

Answer: Answers will vary.

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

Answer: Answers will vary.

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

Solve the problem.

- 9) The following frequency distribution analyzes the scores on a math test. Find the indicated class midpoint or boundary.

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

The class boundaries of scores interval 40-59

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

Answer: A

- 10) The following frequency distribution analyzes the scores on a math test. Find the indicated class midpoint or boundary.

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

The class midpoint of scores interval 40-59

- A) 48.5 B) 50.5 C) 49.0 D) 49.5

Answer: D

- 11) The following frequency distribution analyzes the scores on a math test. Find the indicated class midpoint or boundary.

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

The class boundaries of scores interval 95-99

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

Answer: C

- 12) The following frequency distribution analyzes the scores on a math test. Find the indicated class midpoint or boundary.

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

The class midpoint of scores interval 95-99

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

Answer: B

- 13) Using the employment information in the table on Alpha Corporation, determine the width of each class.

Years employed at Alpha Corporation	
Class Limits (years of service)	Frequency (No. of employees)
1 - 5	5
6 - 10	20
11 - 15	25
16 - 20	10
21 - 25	5
26 - 30	3

A) 5

B) 10

C) 6

D) 4

Answer: A

- 14) Using the employment information in the table on Alpha Corporation, find the class midpoint for class 1-5.

Years employed at Alpha Corporation	
Class Limits (years of service)	Frequency (No. of employees)
1 - 5	5
6 - 10	20
11 - 15	25
16 - 20	10
21 - 25	5
26 - 30	3

A) 3.0

B) 3.5

C) 5.0

D) 2.5

Answer: A

- 15) Using the employment information in the table on Alpha Corporation, find the class boundaries for class 26-30.

Years employed at Alpha Corporation	
Class Limits (years of service)	Frequency (No. of employees)
1 - 5	5
6 - 10	20
11 - 15	25
16 - 20	10
21 - 25	5
26 - 30	3

A) 26.5, 30.5

B) 25.5, 30.5

C) 25.5, 20.5

D) 26.5, 29.5

Answer: B

- 16) Using the information in the table on home sale prices in the city of Summerhill for the month of June, determine the width of each class.

Class Limits (Sale price in thousands)	Frequency (No. of homes sold)
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) 31

B) 28

C) 61

D) 30

Answer: A

- 17) Using the information in the table on home sale prices in the city of Summerhill for the month of June, find the class midpoint for class 235.0-265.9.

Class Limits (Sale price in thousands)	Frequency (No. of homes sold)
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) 250.55

B) 250.50

C) 250.40

D) 250.45

Answer: D

- 18) Using the information in the table on home sale prices in the city of Summerhill for the month of June, find the class boundaries for class 80.0-110.9.

Class Limits (Sale price in thousands)	Frequency (No. of homes sold)
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) 79.90, 110.95

B) 80.00, 110.95

C) 79.95, 110.95

D) 79.90, 111.0

Answer: C

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

19)

Incomes	Frequency
200-300	75
301-400	51
401-500	95
501-600	92
>600	14

A)

Incomes	Relative Frequency
200-300	22.94%
301-400	15.60%
401-500	29.05%
501-600	28.13%
>600	4.28%

B)

Incomes	Relative Frequency
200-300	28.61%
301-400	28.40%
401-500	4.31%
501-600	22.66%
>600	28.70%

C)

Incomes	Relative Frequency
200-300	12.5%
301-400	20.1%
401-500	37.3%
501-600	15.2%
>600	14.9%

D)

Incomes	Relative Frequency
201-300	15.5%
301-400	22.1%
401-500	31.3%
501-600	16.2%
>600	14.9%

Answer: A

20)

Scores	Frequency
91-100	5
81-90	5
71-80	7
61-70	8
<61	4

A)

Scores	Relative Frequency
91-100	12.5%
81-90	20.1%
71-80	37.3%
61-70	15.2%
<61	14.9%

B)

Scores	Relative Frequency
91-100	15.5%
81-90	22.1%
71-80	31.3%
61-70	16.2%
<61	14.9%

C)

Scores	Relative Frequency
91-100	17.24%
81-90	17.24%
71-80	24.14%
61-70	27.59%
<61	13.79%

D)

Scores	Relative Frequency
91-100	0.28%
81-90	0.07%
71-80	0.41%
61-70	0.17%
<61	0.07%

Answer: C

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

21)

Speed	Number of balls
0 - 29	4
30 - 59	16
60 - 89	60
90 - 120	20

A)

Speed	Cumulative Frequency
0 - 29	.04
30 - 59	.20
60 - 89	.80
90 - 120	100

B)

Speed	Cumulative Frequency
0 - 29	100
30 - 59	80
60 - 89	82
90 - 120	4

C)

Speed	Cumulative Frequency
0 - 29	4
30 - 59	20
60 - 89	80
90 - 120	100

D) None of the above

Answer: C

22)

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
1.2 - 2.1	7
2.2 - 3.1	17
3.2 - 3.6	30

C) 3

D)

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	28

Answer: A

23)

Days of vacation	Frequency
0 - 1	19
2 - 3	20
4 - 5	16
6 - 7	22
8 - 9	23

A)

Days of vacation	Cumulative Frequency
0 - 1	0.19
2 - 3	0.2
4 - 5	0.16
6 - 7	0.22
8 - 9	0.23

B)

Days of vacation	Cumulative Frequency
0 - 1	19
2 - 3	39
4 - 5	56
6 - 7	78
8 - 9	100

C)

Days of vacation	Cumulative Frequency
0 - 1	39
2 - 3	55
4 - 5	77
6 - 7	100
8 - 9	123

D)

Days of vacation	Cumulative Frequency
0 - 1	19
2 - 3	39
4 - 5	55
6 - 7	77
8 - 9	100

Answer: D

24)

Height (inches)	Frequency
69.0 - 71.9	19
72.0 - 74.9	22
75.0 - 77.9	20
78.0 - 80.9	16
81.0 - 83.9	3

A)

Height (inches)	Cumulative Frequency
69.0 - 71.9	19
72.0 - 74.9	41
75.0 - 77.9	61
78.0 - 80.9	77
81.0 - 83.9	80

B)

Height (inches)	Cumulative Frequency
69.0 - 71.9	19
72.0 - 74.9	41
75.0 - 77.9	61
78.0 - 80.9	75
81.0 - 83.9	80

C)

Height (inches)	Cumulative Frequency
69.0 - 71.9	41
72.0 - 74.9	61
75.0 - 77.9	77
78.0 - 80.9	80
81.0 - 83.9	83

D)

Height (inches)	Cumulative Frequency
69.0 - 71.9	0.237
72.0 - 74.9	0.275
75.0 - 77.9	0.250
78.0 - 80.9	0.200
81.0 - 83.9	0.037

Answer: A

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.

- 25) A medical research team studied the ages of patients who had strokes caused by stress. The ages of 34 patients who suffered stress strokes were as follows.

29 30 36 41 45 50 57 61 28 50 36 58
60 38 36 47 40 32 58 46 61 40 55 32
61 56 45 46 62 36 38 40 50 27

Construct a frequency table for these ages. Use 8 classes beginning with a lower class limit of 25.

Age	Frequency

Answer:

Age	Frequency
25 - 29	3
30 - 34	3
35 - 39	6
40 - 44	4
45 - 49	5
50 - 54	3
55 - 59	5
60 - 64	5

- 26) 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.

6 6 6 3 6 6 9 8 6 3 8 6
6 8 6 6 8 6 6 8 6 8 8 3

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

Hours	Frequency

Answer:

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

- 27) Lori asked 24 students how many hours they had spent doing homework during the previous week. The results are shown below.

10 10 10 9 10 10 14 13 10 9 12 10
10 12 10 10 12 10 10 13 10 12 13 9

Construct a frequency table. Use 4 classes, a class width of 2 hours, and a lower limit of 8 for class 1.

Hours	Frequency

Answer:

Hours	Frequency
8 - 9	3
10 - 11	13
12 - 13	7
14 - 15	1

- 28) On a math test, the scores of 24 students were

99 73 72 66 72 72 99 85 72 65 82 73
73 82 72 73 82 72 73 85 73 82 85 66

Construct a frequency table. Use 4 classes beginning with a lower class limit of 60.

Score	Frequency

Answer:

Score	Frequency
60 - 69	3
70 - 79	12
80 - 89	7
90 - 99	2

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

8.10 11.85 14.28 16.03
 12.53 17.68 9.97 15.96
 15.86 14.09 14.67 11.10

Construct a frequency table with 4 classes.

Charges	Frequency

Answer:

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

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

Provide an appropriate response.

30) Sturges' guideline suggests that when constructing a frequency distribution, the ideal number of classes can be approximated by $1 + (\log n)/(\log 2)$, where n is the number of data values. Use this guideline to find the ideal number of classes when the number of data values is 122.

A) 10

B) 7

C) 9

D) 8

Answer: D

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

31) Consider the frequency distribution below, which has single values as classes:

Value	Frequency
10	1
11	3
12	7
13	18
14	10
15	4
16	2
17	7
18	16
19	10
20	6
21	2

Describe the distribution of the data. Use this frequency distribution to create two new frequency distributions for the data, one with four classes of equal width and one with six classes of equal width. Does the frequency distribution with four classes capture the distribution of the data? Does the frequency distribution with six classes capture the distribution of the data? Explain your thinking.

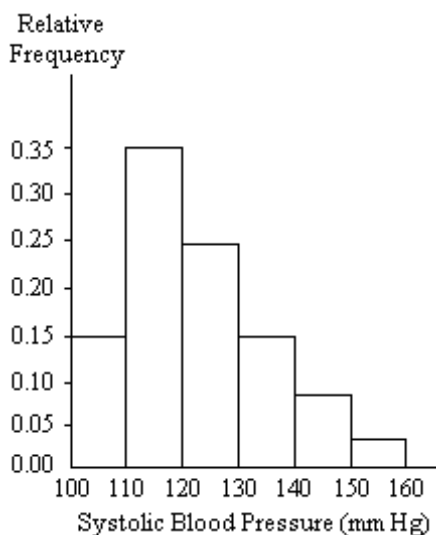
Answer: The data is bimodal because it has two peaks, one at around 13 and one at around 18. The two frequency distributions are as follows:

class	freq	class	freq
10-11	4	10-11	4
11-12	11	12-13	25
12-13	32	14-15	14
13-14	25	16-17	9
14-15	18	18-19	26
		20-21	8

The distribution with four classes does not capture the bimodal nature of the data, while the distribution with six classes does.

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

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. Use the histogram to answer the question. The blood pressure readings were given to the nearest whole number.



32) Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive?

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

Answer: B

33) Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 139 inclusive?

- A) 89% B) 39% C) 59% D) 74%

Answer: D

34) What common class width was used to construct the frequency distribution?

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

Answer: C

35) Identify the center of the third class.

- A) 130 B) 120 C) 124 D) 125

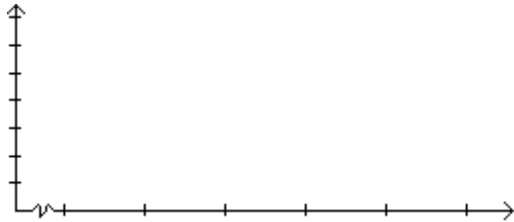
Answer: D

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

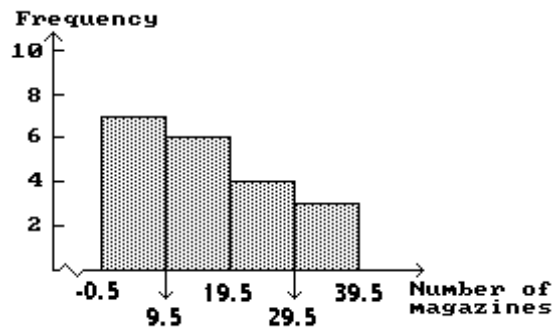
Solve the problem.

- 36) 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. 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

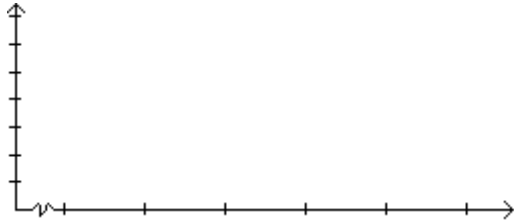


Answer: The approximate amount at the center is 16 magazines.

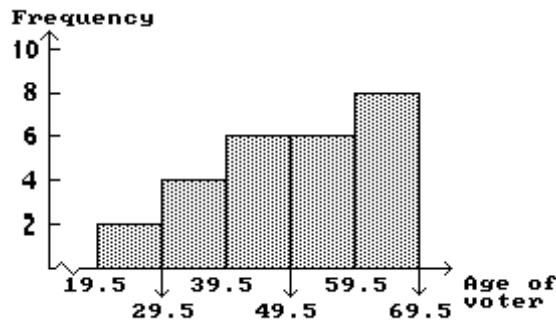


- 37) In a survey, 26 voters were asked their ages. The results are shown below. Construct a histogram to represent the (with 5 classes beginning with a lower class limit of 19.5 and a class width of 10). What is the approximate age at center?

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: The approximate age at the center is 50.



Provide an appropriate response.

- 38) Suppose that a histogram is constructed for the frequency distribution shown below:

Age	Frequency
30-39	11
40-49	23
50-59	17
60-69	12
70-89	6

The class 60-69 has twice the frequency of the class 70-89. In the histogram, will the area of the bar for the class 60-69 be twice the area of the bar for the class 70-89? In other words, will areas be proportional to frequencies in this histogram? Explain your thinking. Are there any conditions under which areas are proportional to frequencies in histograms?

Answer: The areas of the bars for the two classes will actually be the same. This is because the bar for the class 60-69, while it is twice as tall as the bar for the class 70-89, is also only half the width because the class widths are not the same. Heights, not areas, are proportional to frequencies. For classes of equal width, areas will also be proportional to frequencies.

39) Consider the frequency distribution below, which has single values as classes:

Value	Frequency
10	1
11	3
12	7
13	18
14	10
15	4
16	2
17	7
18	16
19	10
20	6
21	2

Construct a new frequency distribution for this data with 4 classes. Now, construct another frequency distribution for this data with 6 classes. Suppose that you construct a histogram corresponding to the original data and histogram corresponding to each of the new frequency distributions. Describe the shapes of the three histograms. Does the histogram with six classes capture the distribution of the data? Does the histogram with four classes capture the distribution of the data?

Answer: The data is bimodal because it has two peaks, one at near 13 and one at near 18. The two frequency distributions are as follows:

Class	Frequency	Class	Frequency
10-11	4	10-11	4
10-12	11	12-13	25
13-15	32	14-15	14
16-18	25	16-17	9
19-21	18	18-19	26
		20-21	8

The bimodal distribution of the data will be clearly seen in the histogram of the original data and in the histogram with six classes. In the histogram with four classes, the shape of the data is lost.

40) Construct a frequency distribution and the corresponding histogram in which the following conditions are satisfied:

- The frequency for the second class is twice the frequency of the first class.
- In the histogram, the area of the bar corresponding to the second class is four times the area of the bar corresponding to the first class.

Answer: Answers will vary. The class width of the second class should be twice the class width of the first class.

41) Suppose that you construct a histogram and a relative frequency histogram corresponding to a particular frequency table. In what ways will the two histograms be similar? In what ways will they differ?

Answer: The two histograms will have the same shape. They will also have the same scale on the horizontal axis. They will differ only in the scales on the vertical axis: the histogram will show frequencies on the vertical axis while the relative frequency histogram will show relative frequencies.

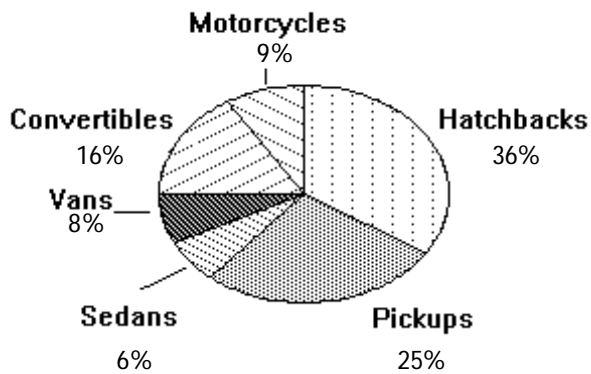
42) Construct a frequency distribution that includes an outlier. Construct the corresponding histogram. Then, construct the corresponding histogram without including the outlier. How much does the outlier affect the shape of the histogram?

Answer: Answers will vary.

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

Use the circle graph to solve the problem.

43) A survey of the 5589 vehicles on the campus of State University yielded the following pie chart.



What percent of the vehicles are hatchbacks?

A) 201%

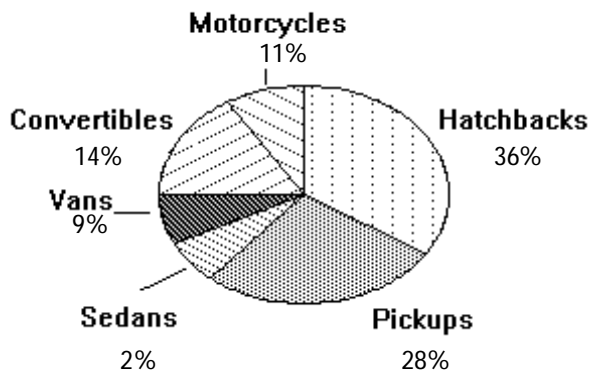
B) 8%

C) 36%

D) 25%

Answer: C

44) A survey of the 4960 vehicles on the campus of State University yielded the following pie chart.



Together, what percent of the vehicles are either vans or convertibles?

A) 5%

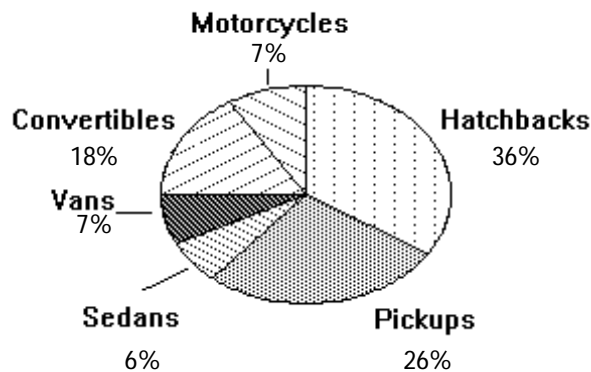
B) 23%

C) 14%

D) 126%

Answer: B

45) A survey of the 7095 vehicles on the campus of State University yielded the following pie chart.

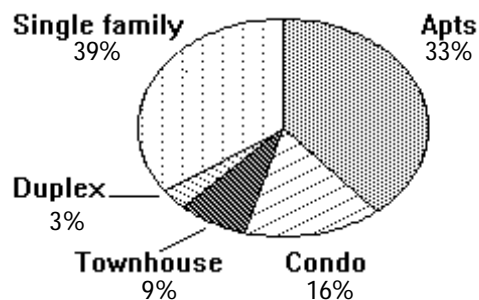


Find the number of pickups. Round your result to the nearest whole number.

- A) 26 B) 5250 C) 2199 D) 1845

Answer: D

46) The pie chart shows the percent of the total population of 54,400 of Springfield living in the given types of housing. Round your result to the nearest whole number.

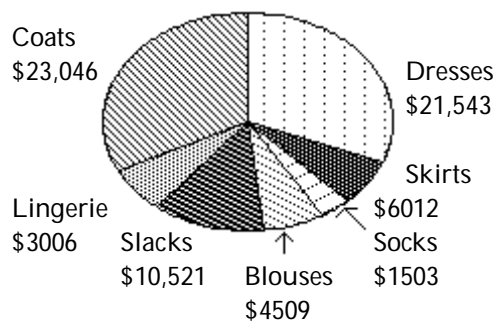


Find the number of people who live in townhouses.

- A) 49,504 people B) 7616 people C) 4896 people D) 9 people

Answer: C

47) The pie chart below gives the inventory of the women's department of a store.

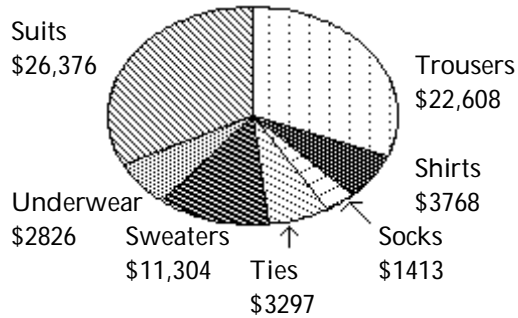


What is the total inventory?

- A) \$71,643 B) \$48,597 C) \$70,140 D) \$68,637

Answer: C

- 48) The pie chart below gives the inventory of the men's department of a store.

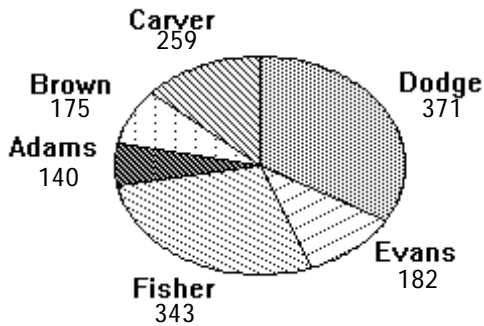


In which item of apparel does the store have the smallest investment?

- A) Socks B) Underwear C) Shirts D) Suits

Answer: A

- 49) The pie chart below gives the number of students in the residence halls at the state university.

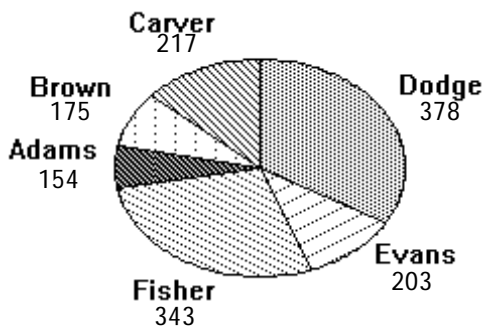


Which residence hall has the third highest number of students?

- A) Dodge B) Adams C) Carver D) Fisher

Answer: C

- 50) The pie chart below gives the number of students in the residence halls at the state university.



Write the ratio of the number of residents at Fisher to the number of students at Carver.

- A) $\frac{49}{30}$ B) $\frac{7}{30}$ C) $\frac{49}{31}$ D) $\frac{31}{49}$

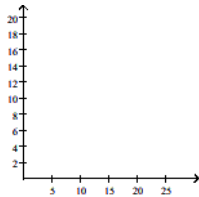
Answer: C

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

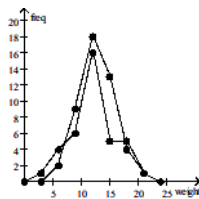
Solve the problem.

- 51) The frequency table below shows the amount of weight loss during the first month of a diet program for both males and females. Compare the results and determine whether there appears to be a significant difference between the genders.

Weight (lb)	Frequency (males)	Weight (lb)	Frequency (females)
5-7	2	5-7	4
8-10	9	8-10	3
11-13	18	11-13	19
14-16	13	14-16	5
17-19	4	17-19	15
20-22	1	20-22	1

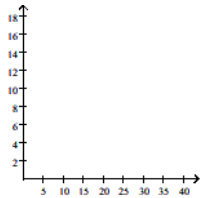


Answer: There does not appear to be a significant difference.

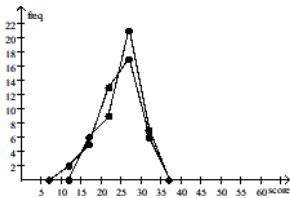


- 52) The data shows the roundtrip mileage that 43 randomly selected professors and students drive to school each day. Compare the results and determine whether there appears to be any significant difference between the two groups.

Score	Frequency	Score	Frequency
10-14	2	10-14	0
15-19	5	15-19	6
20-24	13	20-24	9
25-29	17	25-29	21
30-34	6	30-34	7



Answer: There does not appear to be a significant difference.



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

Find the original data from the stem-and-leaf plot.

53)

Stem	Leaves
3	5 9
4	1 9
5	5 5

- A) 35, 39, 41, 41, 55, 55
C) 35, 31, 39, 41, 51, 55

- B) 31, 35, 31, 49, 59, 55
D) 35, 39, 41, 49, 55, 55

Answer: D

54)

Stem	Leaves
49	1 5 8
50	1 3 9
51	1 8

- A) 50, 54, 57, 51, 53, 59, 52, 59
C) 49158, 50139, 5118

- B) 491, 495, 508, 501, 503, 509, 511, 528
D) 491, 495, 498, 501, 503, 509, 511, 518

Answer: D

55)

Stem	Leaves
6	1 7
7	1 1 3 5
8	1 3 3 7 9
9	3 5

- A) 63, 63, 65, 71, 71, 73, 75, 81, 81, 93, 95
C) 61, 67, 73, 73, 75, 83, 85, 87, 89, 93, 95

- B) 61, 67, 71, 71, 73, 75, 81, 83, 83, 87, 89, 93, 95
D) 7, 13, 7, 7, 9, 11, 9, 9, 11, 15, 17, 12, 14, 15

Answer: B

56)

Stem	Leaves
7.7	1 8
7.8	8 8
7.9	1 8 8

- A) 7.71, 7.72, 7.88, 7.88, 7.95, 7.98, 7.98
C) 0.87, 1.57, 1.58, 1.58, 0.89, 1.59, 1.59

- B) 7.71, 7.78, 7.88, 7.88, 7.91, 7.98, 7.98
D) 0.87, 0.87, 1.58, 1.58, 1.58, 0.89, 1.59, 1.6

Answer: B

57)

Stem	Leaves
25	50 94
26	11 21 72
27	50 94

- A) 2550, 2594, 2611, 2621, 2672, 2750, 2794
C) 75, 119, 47, 47, 98, 77, 121

- B) 75, 119, 37, 47, 98, 77, 121
D) 2550, 2551, 2612, 2621, 2672, 2750, 2795

Answer: A

58)

Stem	Leaves
4 - 5	8 * 1
6 - 7	1 * 8
8 - 9	1 3 * 8

- A) 4, 8, 5, 1, 6, 3, 6 8, 8 1, 8 3, 8 8
C) 48, 41, 51, 61, 71, 81, 93, 98

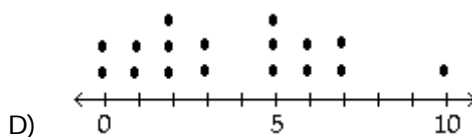
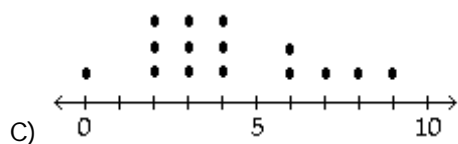
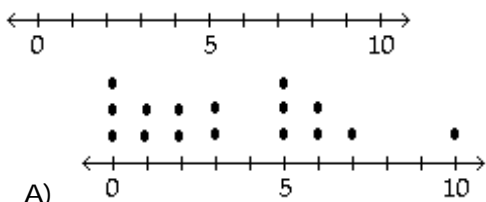
- B) 48, 51, 61, 78, 81, 83, 98
D) 48, 51, 61, 68, 78, 81, 83, 108

Answer: B

Construct the dot plot for the given data.

- 59) Attendance records at a school show the number of days each student was absent during the year. The days absent for each student were as follows.

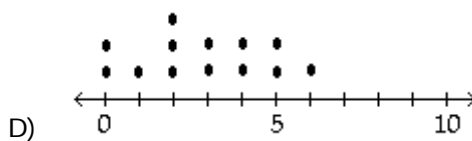
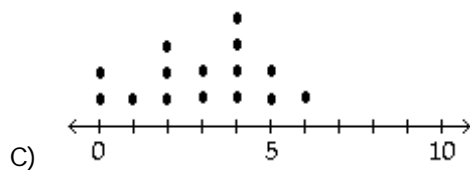
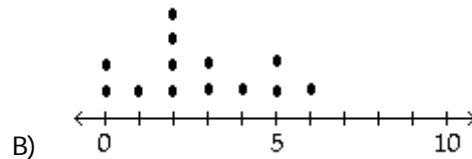
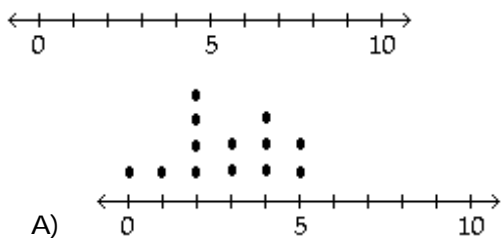
0 2 3 4 2 3 4 6 7 2 3 4 6 9 8



Answer: C

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

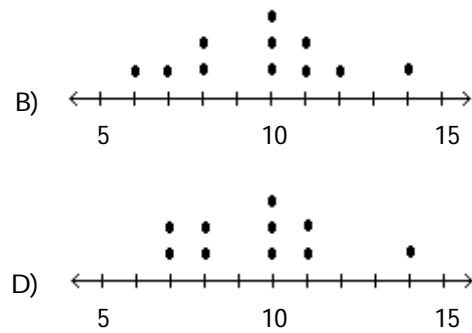
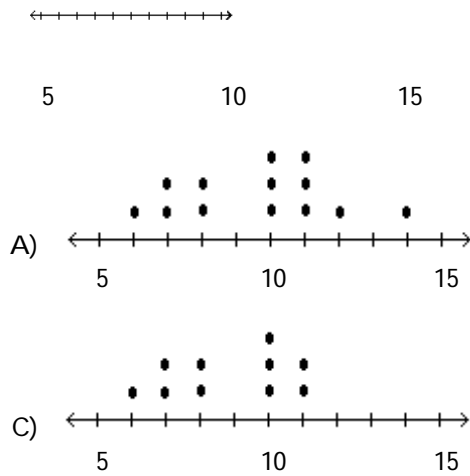
6 3 2 3 5 2 0 2 5 4 2 0 1



Answer: B

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

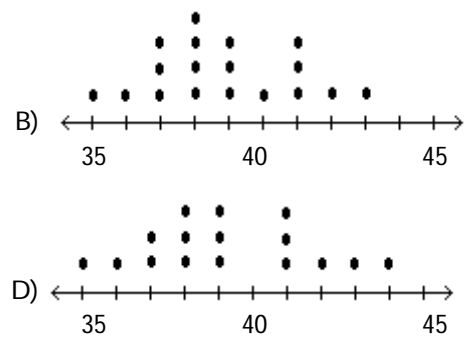
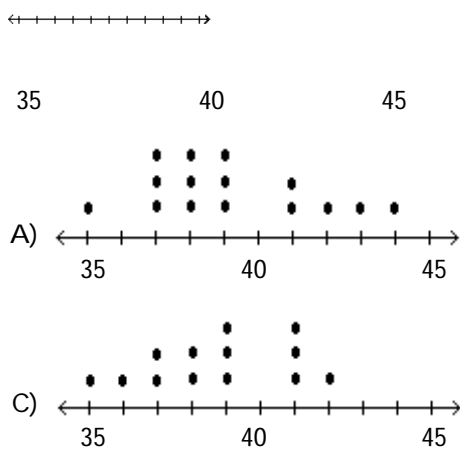
10 11 8 14 7 10 10 11 8 7



Answer: D

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

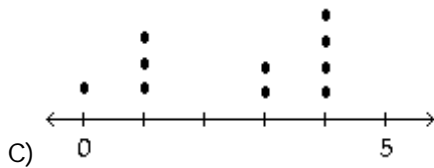
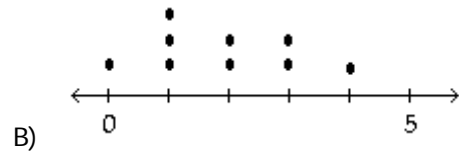
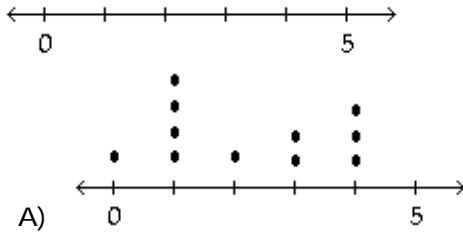
38 39 37 37 44 38 41 38 39 35 42 39 43 37 41



Answer: A

63) The frequency chart shows the distribution of defects for the machines used to produce a product.

Defects	Frequency
0	1
1	3
2	0
3	2
4	4
5	0



Answer: C

Use the data to create a stemplot.

64) 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

A)
$$\begin{array}{r|l} 3 & 0\ 2 \\ 4 & 3\ 6\ 8\ 9 \\ 4 & 1\ 3\ 5\ 6\ 7 \\ 6 & 5 \end{array}$$

B)
$$\begin{array}{r|l} 3 & 0\ 2 \\ 4 & 3\ 3\ 6\ 8\ 9 \\ 5 & 1\ 5\ 6\ 7 \\ 6 & 5 \end{array}$$

Answer: B

65) The midterm test scores for the seventh-period typing class are listed below.

85 77 93 91 74 65 68 97 88 59 74 83 85 72 63 79

A)
$$\begin{array}{r|l} 5 & 9 \\ 6 & 3\ 5\ 8 \\ 7 & 3\ 5\ 5\ 8 \\ 8 & 2\ 4\ 4\ 7\ 9 \\ 9 & 1\ 3\ 7 \end{array}$$

B)
$$\begin{array}{r|l} 5 & 9 \\ 6 & 3\ 5\ 8 \\ 7 & 2\ 4\ 4\ 7\ 9 \\ 8 & 3\ 5\ 5\ 8 \\ 9 & 1\ 3\ 7 \end{array}$$

Answer: B

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

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

A)

```

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

```

B)

```

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

```

Answer: B

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

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

```

Answer: A

68) Twenty-four workers were surveyed about how long it takes them to travel to work each day. The data below are given in minutes.

20 35 42 52 65 20 60 49 24 37 23 24
22 20 41 25 28 27 50 47 58 30 32 48

A)

```

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

```

B)

```

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

```

Answer: B

69) The ages of the 45 members of a track and field team are listed below. Construct an expanded stemplot with about 10 rows.

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

```

Answer: A

70) The normal monthly precipitation (in inches) for August is listed for 39 different U.S. cities. Construct an expanded stemplot with about 9 rows.

3.5 1.6 2.4 3.7 4.1 3.9 1.0 3.6 1.7 0.4 3.2 4.2 4.1
 4.2 3.4 3.7 2.2 1.5 4.2 3.4 2.7 4.0 2.0 0.8 3.6 3.7
 0.4 3.7 2.0 3.6 3.8 1.2 4.0 3.1 0.5 3.9 0.1 3.5 3.4

A)

```

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

B)

```

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

Answer: B

71) 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.

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)

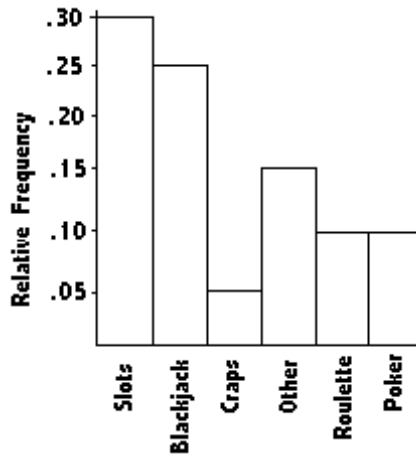
Men	Women
	11 0 1
	12 2 6 8
6	13 7 9
1 0	14 2 5
5 3 3	15 0 2 4
9 6 2	16 6
6 3	17 0 5
9 6	18
9 6	19

Answer: A

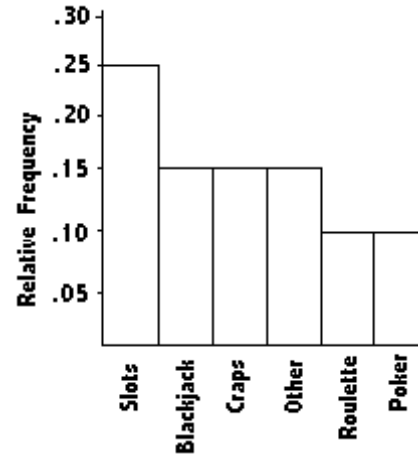
Solve the problem.

- 72) 260 casino patrons, were interviewed as they left the casino. 78 of them said they spent most of the time playing the slots. 78 of them said they played blackjack. 39 said they played craps. 13 said roulette. 13 said poker. The rest were not sure what they played the most. Construct a Pareto chart to depict the gaming practices of the group of casino goers. Choose the vertical scale so that the relative frequencies are represented.

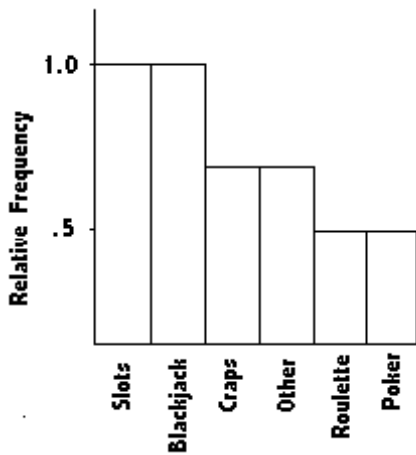
A)



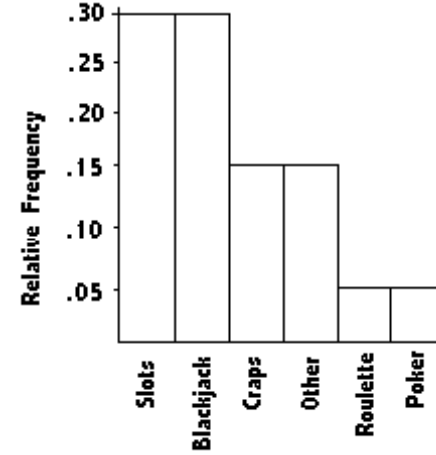
B)



C)



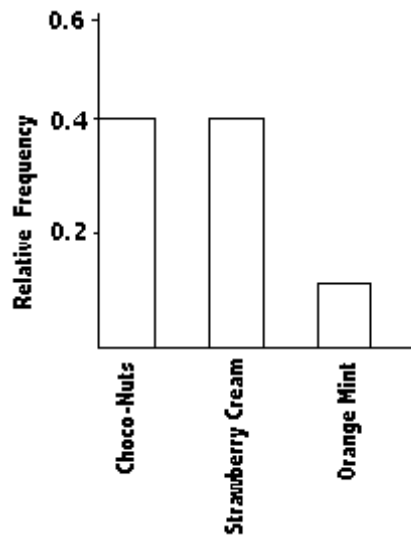
D)



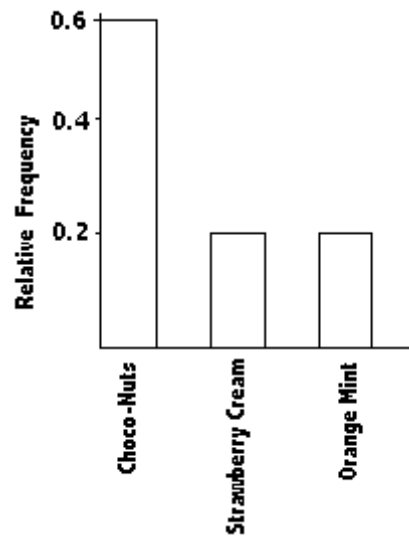
Answer: D

73) 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 50 people at a grocery store. 10 ice cream tasters preferred the Strawberry Cream, 30 preferred Choco-Nuts, and 10 loved the Orange Mint. Construct a Pareto chart to represent these preferences. Choose the vertical scale so that the relative frequencies are represented.

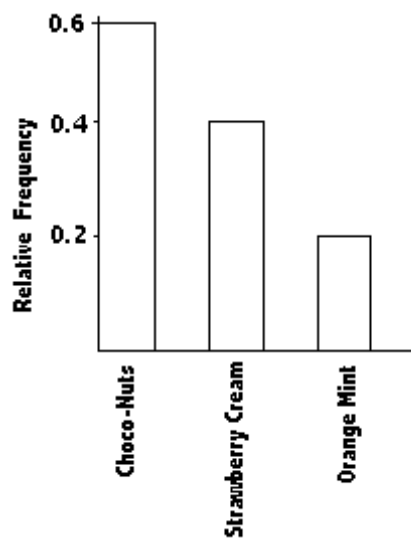
A)



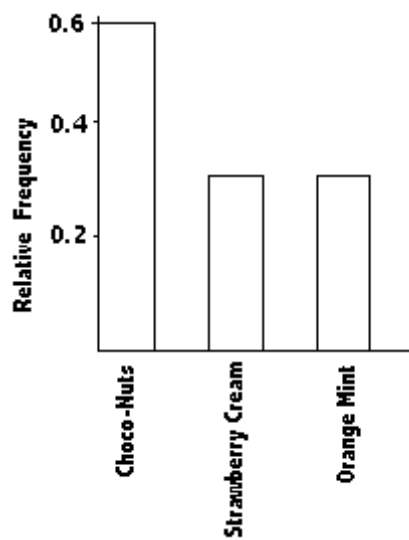
B)



C)



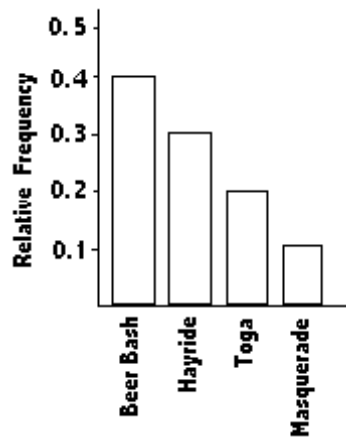
D)



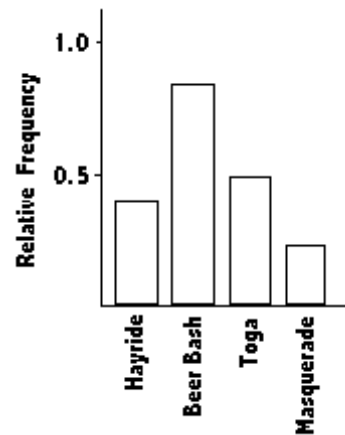
Answer: B

- 74) 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.

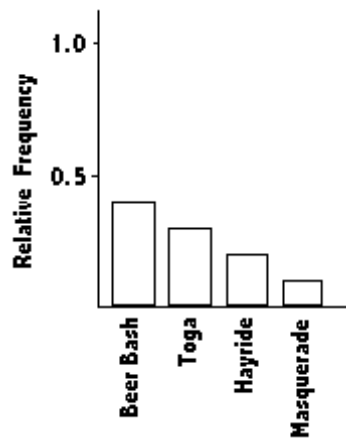
A)



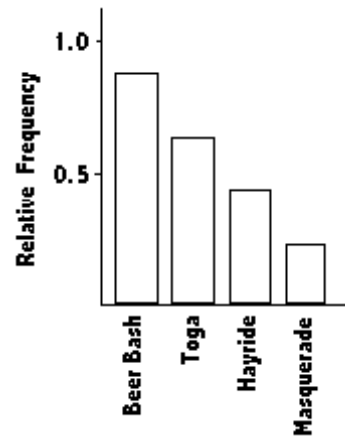
B)



C)



D)



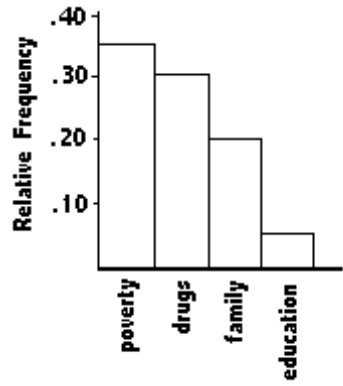
Answer: C

- 75) At the National Criminologists Association's annual convention, participants filled out a questionnaire asking what thought was the most important cause for criminal behavior. The tally was as follows.

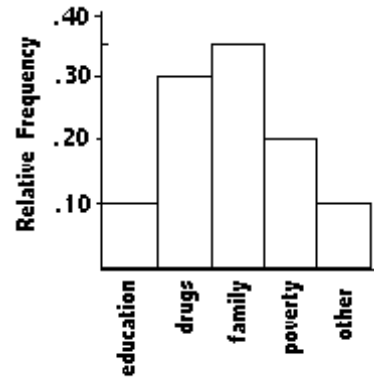
Cause	Frequency
education	19.5
drugs	58.5
family	39
poverty	68.25
other	9.75

Make a Pareto chart to display these findings.

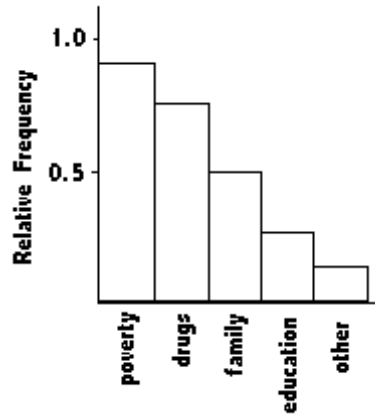
A)



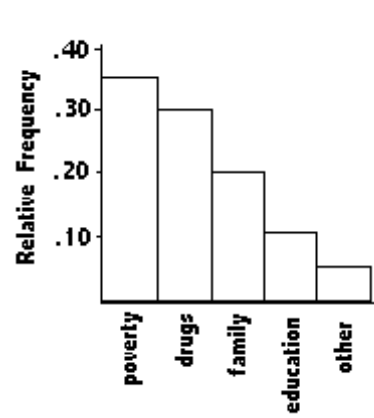
B)



C)



D)



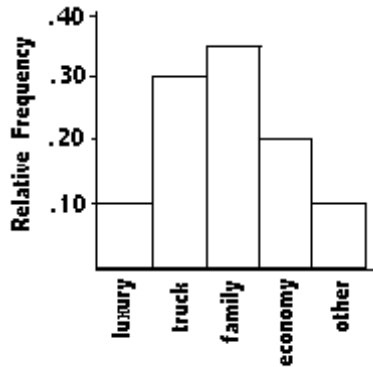
Answer: D

- 76) A car dealer is deciding what kinds of vehicles he should order from the factory. He looks at his sales report for the preceding period. Choose the vertical scale so that the relative frequencies are represented.

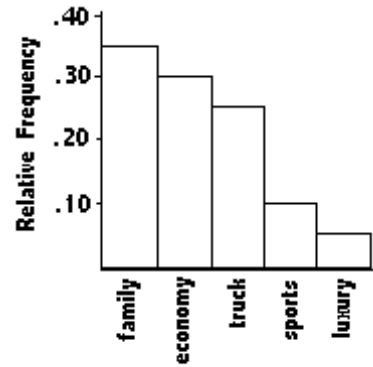
Vehicle	Sales
Economy	32
Sports	8
Family	56
Luxury	16
Truck	48

Construct a Pareto chart to help him decide.

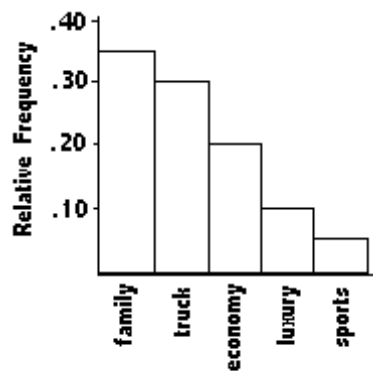
A)



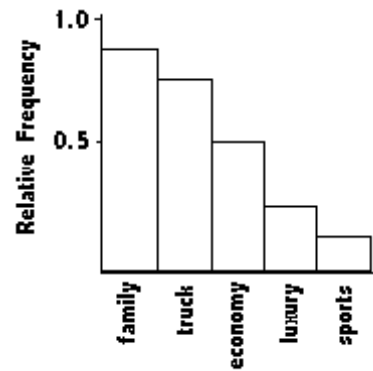
B)



C)



D)

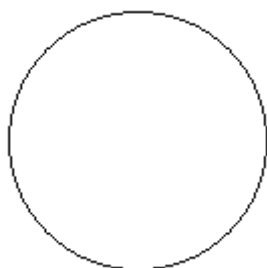


Answer: C

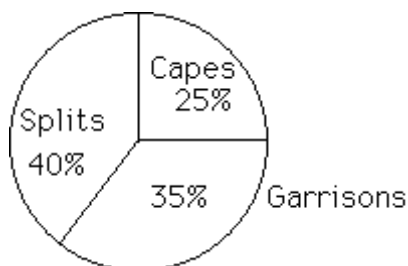
Construct a pie chart representing the given data set.

77) The following data give the distribution of the types of houses in a town containing 30,000 houses.

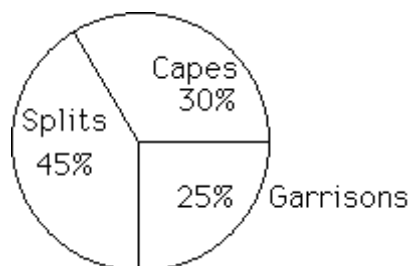
Capes	Garrisons	Splits
7500	10,500	12,000



A)



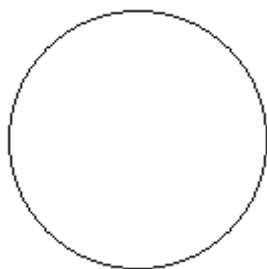
B)



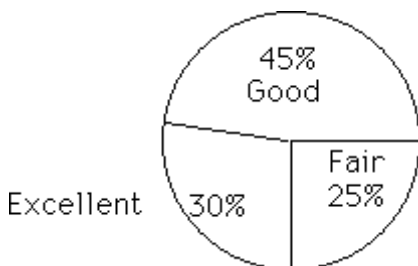
Answer: A

78) After reviewing a movie, 800 people rated the movie as excellent, good, or fair. The following data give the rating distribution.

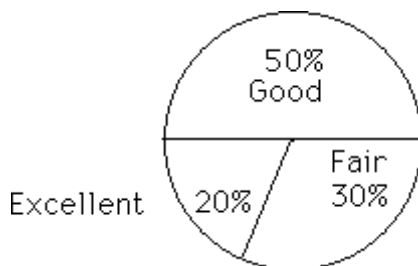
Excellent	Good	Fair
160	400	240



A)



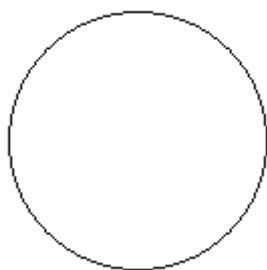
B)



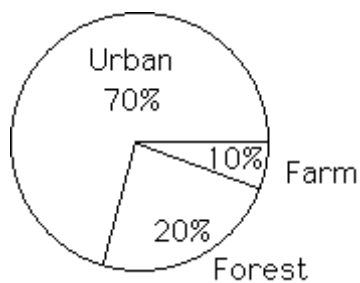
Answer: B

79) The following figures give the distribution of land (in acres) for a county containing 82,000 acres.

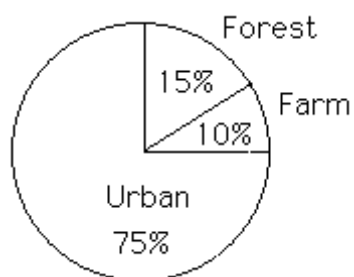
Forest	Farm	Urban
12,300	8200	61,500



A)



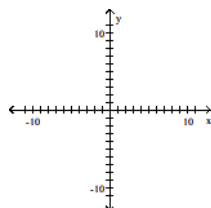
B)



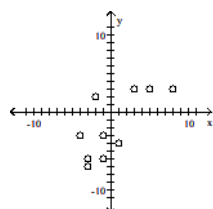
Answer: B

Use the given paired data to construct a scatterplot.

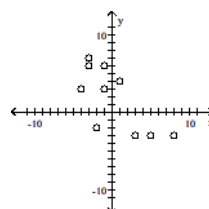
80) x 1 -3 -3 -2 3 5 -1 8 -4 -1
y -4 -6 -7 2 3 3 -6 3 -3 -3



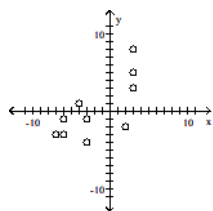
A)



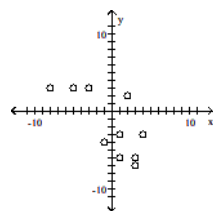
B)



C)

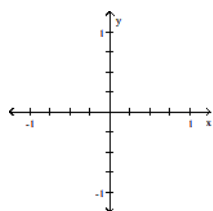


D)

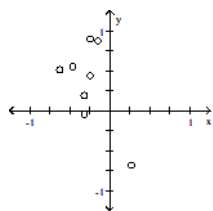


Answer: A

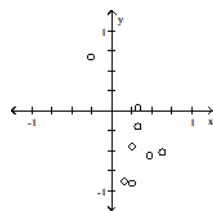
81) x 0.25 0.47 0.32 0.63 -0.27 0.25 0.15 0.32
y 0.44 0.56 -0.04 0.52 -0.68 0.9 0.88 0.19



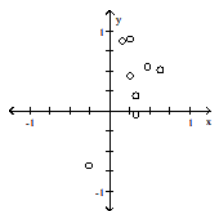
A)



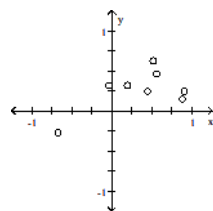
B)



C)

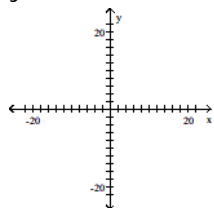


D)

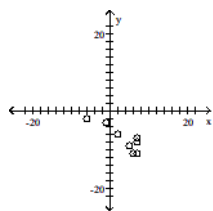


Answer: C

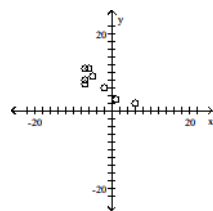
82) x -6 7 7 7 5 6 2 -1 -6
y 2 7 11 8 9 11 6 3 2



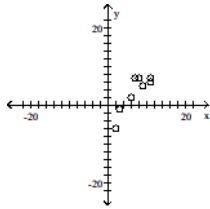
A)



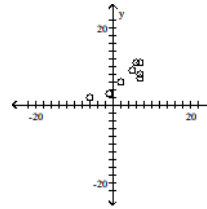
B)



C)



D)



Answer: D

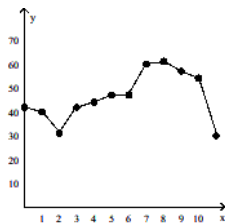
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

- 83) Use the high closing values of Naristar Inc. stock from the years 1990 - 2001 to construct a time-series graph. (Let $x = 0$ stand for 1990 and so on...) Identify a trend.

Year	High	Year	High
1990	42	1996	47
1991	40	1997	60
1992	31	1998	61
1993	42	1999	57
1994	44	2000	54
1995	47	2001	30

Answer:

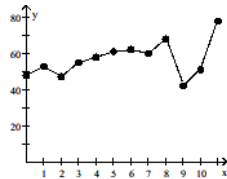


There seems to be a general upward trend with a period of decline in the later years.

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

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

Answer:



There seems to be a general upward trend with a short period of sharp decline followed by a sharp recovery