

Business Statistics (Donnelly)

Chapter 2 Displaying Descriptive Statistics

1) A frequency distribution is a table that shows the number of data observations that fall into specific intervals.

Answer: TRUE

Diff: 1

Keywords: frequency distribution

Reference: Page 23

2) Continuous data are values based on observations that can be counted and are typically represented by whole numbers.

Answer: FALSE

Diff: 1

Keywords: discrete data

Reference: Page 24

3) Continuous data is often the result of measuring observations rather than counting them.

Answer: TRUE

Diff: 1

Keywords: continuous data

Reference: Page 24

4) Discrete data can have an infinite number of values within a specific interval.

Answer: FALSE

Diff: 2

Keywords: discrete data

Reference: Page 24

5) The only limitation in the number of continuous values within an interval is the level of precision of the measuring instrument.

Answer: TRUE

Diff: 1

Keywords: continuous data

Reference: Page 24

6) The sum of the relative frequencies for the relative frequency distribution should be equal to or very close to 1.0 due to rounding.

Answer: TRUE

Diff: 1

Keywords: relative frequency distributions

Reference: Page 25

7) The sum of the cumulative relative frequencies for the cumulative relative frequency distribution should be equal to or very close to 1.0 due to rounding.

Answer: FALSE

Diff: 2

Keywords: cumulative relative frequency distributions

Reference: Page 25

8) A symmetrical distribution is one in which the right side of the distribution looks like the mirror image of the left side of the distribution.

Answer: TRUE

Diff: 1

Keywords: symmetrical distributions

Reference: Page 28

9) The goal of constructing a frequency distribution is to identify a useful pattern in the data and often there is more than one acceptable way to accomplish this with grouped quantitative data.

Answer: TRUE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 30

10) When creating a frequency distribution with grouped qualitative data and 45 data points, five classes should be set up using the $2^k > n$ rule.

Answer: FALSE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 30

11) When constructing a frequency distribution with grouped qualitative data, occasionally you will end up with $k + 1$ or $k - 1$ classes to cover the entire data set.

Answer: TRUE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 31

12) Fifty employees at CSC Corporation responded to a survey asking for the number of minutes they commute to work in the morning. Eighteen employees indicated that their commutes are 15 to less than 20 minutes. The relative frequency for this class in a frequency distribution would be 0.18.

Answer: FALSE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 31

13) Fifty employees at CSC Corporation responded to a survey asking for the number of minutes they commute to work in the morning. Management would like to know the proportion of employees whose commute is less than 30 minutes. A cumulative relative frequency distribution using grouped data would provide the information to answer this question.

Answer: TRUE

Diff: 1

Keywords: cumulative relative frequency distributions

Reference: Page 31

14) A fast food restaurant would like to examine the wait time for customers who use the drive-thru window. The following class boundaries are appropriate to construct a frequency distribution for this data.

| Number of Minutes |
|-------------------|
| 0-2 |
| 2-4 |
| 4-6 |
| 6-8 |

Answer: FALSE

Diff: 2

Keywords: frequency distribution, grouped quantitative data

Reference: Page 31

15) Equal-size classes refer to classes for a frequency distribution using grouped quantitative data that do not overlap.

Answer: FALSE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 32

16) Empty classes for a frequency distribution using grouped quantitative data result from class widths that are too wide.

Answer: FALSE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 32

17) If the class sizes are not equal for a frequency distribution using grouped quantitative data, patterns in the distribution could be misleading.

Answer: TRUE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 32

18) Under no circumstances should open-ended classes be used for a frequency distribution using grouped quantitative data.

Answer: FALSE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 32

19) The estimated class width for a frequency distribution using grouped quantitative data should be rounded to an integer value to make the class boundaries more readable.

Answer: TRUE

Diff: 1

Keywords: frequency distribution, grouped quantitative data

Reference: Page 30

20) Histograms displaying continuous data have gaps between their bars.

Answer: FALSE

Diff: 1

Keywords: histograms, continuous data

Reference: Page 32

21) Histograms displaying discrete data usually have gaps between their bars.

Answer: TRUE

Diff: 1

Keywords: histograms, continuous data

Reference: Page 32

22) Income and age are examples of data that are technically discrete but are normally displayed in a continuous format.

Answer: TRUE

Diff: 1

Keywords: discrete data, continuous data

Reference: Page 36

23) The cumulative percentage polygon is a line graph that plots the cumulative relative frequency distribution.

Answer: TRUE

Diff: 1

Keywords: cumulative percentage polygon

Reference: Page 37

24) Quantitative data are values that are categorical, describing a characteristic such as gender or level of education.

Answer: FALSE

Diff: 1

Keywords: cumulative percentage polygon

Reference: Page 37

25) A histogram is the appropriate type of graph to display both quantitative and qualitative data.

Answer: FALSE

Diff: 1

Keywords: qualitative data

Reference: Page 45

26) Bar charts can display data either horizontally or vertically.

Answer: TRUE

Diff: 1

Keywords: bar charts

Reference: Page 43

27) Clustered bar charts are preferred over stacked bar charts when you are comparing data within categories, such as which team scored more points in 2009 when compared to 2010.

Answer: TRUE

Diff: 1

Keywords: clustered bar charts

Reference: Page 47

28) Clustered bar charts are preferred over stacked bar charts when you are displaying totals in each category, such as what team scored the most points over the two-year period.

Answer: FALSE

Diff: 1

Keywords: stacked bar charts

Reference: Page 47

29) Pareto charts are a specific type of bar chart used in quality control programs by businesses to graphically display the causes of problems.

Answer: TRUE

Diff: 1

Keywords: Pareto charts

Reference: Page 48

30) Pareto charts display the categories in an increasing order with the least problematic categories shown first.

Answer: FALSE

Diff: 2

Keywords: Pareto charts

Reference: Page 48

31) Pie charts are an excellent tool for comparing proportions for qualitative (categorical) data.

Answer: TRUE

Diff: 1

Keywords: pie charts

Reference: Page 51

32) Each category of a pie chart occupies a segment of the pie that represents the cumulative relative frequency of that category.

Answer: FALSE

Diff: 1

Keywords: pie charts

Reference: Page 51

33) When constructing a pie chart, all categories in the data set must be included in the pie.

Answer: TRUE

Diff: 1

Keywords: pie charts

Reference: Page 52

34) Choose a pie chart rather than a bar chart if you want to compare the relative sizes of the classes to one another and together they comprise all possible categories.

Answer: TRUE

Diff: 1

Keywords: pie charts

Reference: Page 53

35) Choose a pie chart rather than a bar chart if you want to highlight the actual data values and when the classes combined don't form a whole.

Answer: FALSE

Diff: 1

Keywords: pie charts

Reference: Page 53

36) Contingency tables help us identify relationships between two or more variables.

Answer: TRUE

Diff: 1

Keywords: contingency tables

Reference: Page 56

37) The stem and leaf display is a graphical technique that can used to display qualitative data.

Answer: FALSE

Diff: 1

Keywords: stem and leaf display

Reference: Page 60

38) A stem and leaf display allows you to observe individual data values while a histogram groups data values together.

Answer: TRUE

Diff: 1

Keywords: stem and leaf display

Reference: Page 60

39) The dependent variable on scatter plots is placed on the horizontal axis on the graph.

Answer: FALSE

Diff: 2

Keywords: scatter plot, independent variable

Reference: Page 64

40) The independent variable on scatter plots is placed on the vertical axis on the graph.

Answer: FALSE

Diff: 2

Keywords: scatter plot, independent variable

Reference: Page 64

41) The dependent variable in a scatter plot is influenced by changes in the independent variable.

Answer: TRUE

Diff: 2

Keywords: scatter plot, independent variable, dependent variable

Reference: Page 63

42) A data set is known as a times series when each data point is associated with a specific point in time.

Answer: TRUE

Diff: 1

Keywords: time series

Reference: Page 65

43) When graphing a time series, the convention is to place the time data on the vertical axis of the graph.

Answer: FALSE

Diff: 2

Keywords: time series

Reference: Page 65

44) A _____ is a table that shows the number of data observations that fall into specific intervals.

A) histogram

B) frequency distribution

C) percent polygon

D) Pareto chart

Answer: B

Diff: 1

Keywords: frequency distribution

Reference: Page 22

45) _____ data are values based on observations that can be counted and are typically represented by whole numbers.

A) Discrete

B) Continuous

C) Nominal

D) Time series

Answer: A

Diff: 1

Keywords: frequency distribution

Reference: Page 24

46) _____ are values that can take on any real numbers, including numbers that contain decimal points. This data is often the result of measuring observations rather than counting them.

A) Discrete

B) Cross-sectional

C) Ordinal

D) Continuous

Answer: D

Diff: 1

Keywords: continuous data

Reference: Page 24

47) A(n) _____ is a category in a frequency distribution.

A) polygon

B) ogive

C) class

D) histogram

Answer: C

Diff: 1

Keywords: class

Reference: Page 24

48) _____ display the proportion of observations of each class relative to the total number of observations.

- A) Frequency distributions
- B) Cumulative relative frequency distributions
- C) Relative frequency distributions
- D) Histograms

Answer: C

Diff: 1

Keywords: relative frequency distributions

Reference: Page 25

49) _____ totals the proportion of observations that are less than or equal to the class at which you are looking.

- A) Frequency distributions
- B) Cumulative relative frequency distributions
- C) Relative frequency distributions
- D) Histograms

Answer: B

Diff: 1

Keywords: cumulative relative frequency distributions

Reference: Page 25

50) A _____ is a graph showing the number of observations in each class of a frequency distribution.

- A) frequency distribution
- B) polygon
- C) relative frequency distribution
- D) histogram

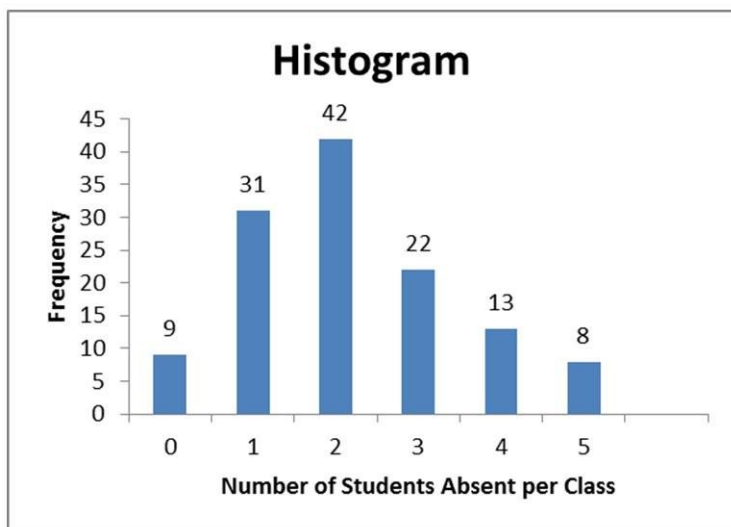
Answer: D

Diff: 1

Keywords: histogram

Reference: Page 26

51) A statistics professor kept attendance records and recorded the number of absent students per class. This data is displayed in the following histogram with the frequency of each number of absent students shown above the bars.



How many total absent students does this data represent?

- A) 42
- B) 100
- C) 125
- D) 160

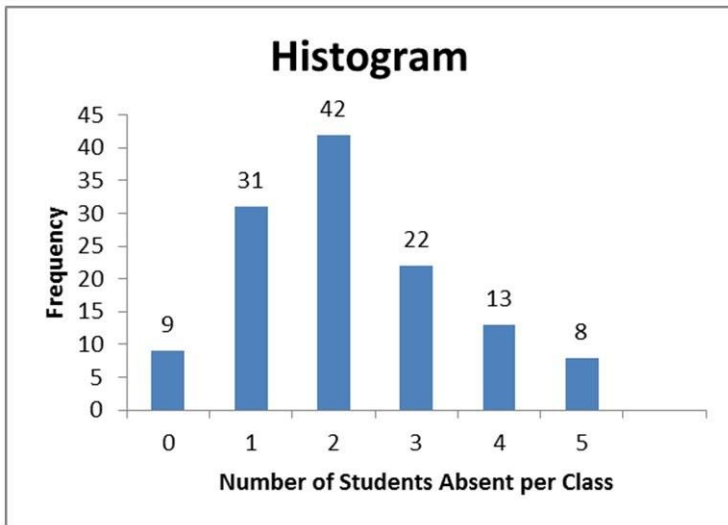
Answer: C

Diff: 2

Keywords: histogram

Reference: Page 26

52) A statistics professor kept attendance records and recorded the number of absent students per class. This data is displayed in the following histogram with the frequency of each number of absent students shown above the bars.



How many statistics classes had three or more students absent?

- A) 8
- B) 13
- C) 22
- D) 43

Answer: D

Diff: 2

Keywords: histogram

Reference: Page 26

53) The class _____ is the breadth, or range, of numbers we plan to put into each class of a frequency distribution using grouped quantitative data.

- A) boundary
- B) frequency
- C) width
- D) number

Answer: C

Diff: 1

Keywords: class width, frequency distribution, grouped data

Reference: Page 30

54) The class _____ represent the minimum and maximum values for each class of a frequency distribution using grouped quantitative data.

- A) boundaries
- B) frequencies
- C) widths
- D) numbers

Answer: A

Diff: 1

Keywords: class boundary, frequency distribution, grouped data

Reference: Page 31

55) Class _____ are the number of observations for each class of a frequency distribution using grouped quantitative data.

- A) boundaries
- B) frequencies
- C) widths
- D) numbers

Answer: B

Diff: 1

Keywords: class frequency, frequency distribution, grouped data

Reference: Page 31

56) Which of the following is **not** a rule for constructing a frequency distribution using grouped quantitative data?

- A) Use equal-size classes.
- B) Use mutually exclusive classes.
- C) Avoid empty classes.
- D) Avoid close-ended classes.

Answer: D

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

57) Consider the following frequency distribution.

| Number of Minutes | Frequency |
|--------------------|-----------|
| 0 to less than 5 | 6 |
| 5 to less than 10 | 9 |
| 8 to less than 13 | 14 |
| 13 to less than 18 | 2 |

Which rule for constructing a frequency distribution using grouped quantitative data has been violated?

- A) Use equal-size classes.
- B) Use mutually exclusive classes.
- C) Avoid empty classes.
- D) No rule has been violated.

Answer: B

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

58) Consider the following frequency distribution.

| Number of Minutes | Frequency |
|--------------------|-----------|
| 0 to less than 5 | 3 |
| 5 to less than 10 | 11 |
| 10 to less than 15 | 10 |
| 15 to less than 20 | 7 |

Which rule for constructing a frequency distribution using grouped quantitative data has been violated?

- A) Use equal-size classes.
- B) Use mutually exclusive classes.
- C) Avoid empty classes.
- D) No rule has been violated.

Answer: D

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

59) Consider the following frequency distribution.

| Number of Customers | Frequency |
|---------------------|-----------|
| 0-2 | 10 |
| 3-5 | 7 |
| 6-10 | 12 |
| 11-15 | 5 |

Which rule for constructing a frequency distribution using grouped quantitative data has been violated?

- A) Use equal-size classes.
- B) Use mutually exclusive classes.
- C) Avoid empty classes.
- D) No rule has been violated.

Answer: A

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

60) A data set has 60 observations with a minimum value equal to 30 and a maximum value equal to 72. The number of classes using the $2^k > n$ rule is

- A) 5.
- B) 6.
- C) 7.
- D) 8.

Answer: B

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

61) A data set has 60 observations with a minimum value equal to 30 and a maximum value equal to 72. The estimated class width using the $2^k > n$ rule to determine the number of classes is

- A) 7.
- B) 9.
- C) 10.
- D) 12.

Answer: A

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

62) _____ classes are classes with boundaries that do not overlap.

- A) Equal-size
- B) Open-ended
- C) Mutually exclusive
- D) Close-ended

Answer: C

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

63) The following frequency distribution displays the weekly sales of a certain brand of television at an electronics store.

| Number Sold | Frequency |
|-------------|-----------|
| 1-5 | 3 |
| 6-10 | 7 |
| 11-15 | 14 |
| 16-20 | 22 |
| 21-25 | 4 |

What is the width of each class in this distribution?

- A) 1
- B) 2
- C) 5
- D) 25

Answer: C

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

64) The following frequency distribution displays the weekly sales of a certain brand of television at an electronics store.

| Number Sold | Frequency |
|-------------|-----------|
| 1-5 | 3 |
| 6-10 | 7 |
| 11-15 | 14 |
| 16-20 | 22 |
| 21-25 | 4 |

How many weeks of data are included in this frequency distribution?

- A) 25
- B) 50
- C) 75
- D) 100

Answer: B

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

65) The following frequency distribution displays the weekly sales of a certain brand of television at an electronics store.

| Number Sold | Frequency |
|-------------|-----------|
| 1-5 | 3 |
| 6-10 | 7 |
| 11-15 | 14 |
| 16-20 | 22 |
| 21-25 | 4 |

What is the probability that between 11 to 15 televisions will be sold next week?

- A) 0.28
- B) 0.36
- C) 0.44
- D) 0.50

Answer: A

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

66) The following frequency distribution displays the weekly sales of a certain brand of television at an electronics store.

| Number Sold | Frequency |
|-------------|-----------|
| 1-5 | 3 |
| 6-10 | 7 |
| 11-15 | 14 |
| 16-20 | 22 |
| 21-25 | 4 |

What is the probability that 20 or fewer televisions will be sold next week?

- A) 0.54
- B) 0.66
- C) 0.80
- D) 0.92

Answer: D

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

67) The following frequency distribution displays the weekly sales of a certain brand of television at an electronics store.

| Number Sold | Frequency |
|-------------|-----------|
| 1-5 | 3 |
| 6-10 | 7 |
| 11-15 | 14 |
| 16-20 | 22 |
| 21-25 | 4 |

What is the probability that between 6 and 15 televisions will be sold next week?

- A) 0.14
- B) 0.42
- C) 0.58
- D) 0.66

Answer: B

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

68) The following distribution shows the frequency of the asking price, in thousands of dollars, for current homes on the market in a particular city.

| Asking Price | Frequency |
|----------------------|-----------|
| \$350 to under \$400 | 12 |
| \$400 to under \$450 | 9 |
| \$450 to under \$500 | 17 |
| \$500 to under \$550 | 11 |
| \$550 to under \$600 | 6 |

What is the width of each class, in thousands of dollars, for this distribution?

- A) \$10
- B) \$20
- C) \$40
- D) \$50

Answer: D

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

69) The following distribution shows the frequency of the asking price, in thousands of dollars, for current homes on the market in a particular city.

| Asking Price | Frequency |
|----------------------|-----------|
| \$350 to under \$400 | 12 |
| \$400 to under \$450 | 9 |
| \$450 to under \$500 | 17 |
| \$500 to under \$550 | 11 |
| \$550 to under \$600 | 6 |

How many homes are currently on the market in this city?

- A) 55
- B) 50
- C) 32
- D) 17

Answer: A

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

70) The following distribution shows the frequency of the asking price, in thousands of dollars, for current homes on the market in a particular city.

| Asking Price | Frequency |
|----------------------|-----------|
| \$350 to under \$400 | 12 |
| \$400 to under \$450 | 9 |
| \$450 to under \$500 | 17 |
| \$500 to under \$550 | 11 |
| \$550 to under \$600 | 6 |

What is the probability that a randomly selected home in this city will have an asking price between \$350,000 and under \$400,000?

- A) 0.164
- B) 0.218
- C) 0.309

D) 0.333

Answer: B

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

71) The following distribution shows the frequency of the asking price, in thousands of dollars, for current homes on the market in a particular city.

| Asking Price | Frequency |
|----------------------|-----------|
| \$350 to under \$400 | 12 |
| \$400 to under \$450 | 9 |
| \$450 to under \$500 | 17 |
| \$500 to under \$550 | 11 |
| \$550 to under \$600 | 6 |

What is the probability that a randomly selected home in this city will have an asking price under \$550,000?

- A) 0.505
- B) 0.691
- C) 0.891
- D) 0.950

Answer: C

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

72) The following distribution shows the frequency of the asking price, in thousands of dollars, for current homes on the market in a particular city.

| Asking Price | Frequency |
|----------------------|-----------|
| \$350 to under \$400 | 12 |
| \$400 to under \$450 | 9 |
| \$450 to under \$500 | 17 |
| \$500 to under \$550 | 11 |
| \$550 to under \$600 | 6 |

What is the probability that a randomly selected home in this city will have an asking price of \$500,000 or more?

- A) 0.309
- B) 0.657
- C) 0.891
- D) 0.914

Answer: A

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

73) Bins in Excel represent the

- A) lower boundary of each class in a frequency distribution.
- B) upper boundary of each class in a frequency distribution.
- C) width of each class in a frequency distribution.
- D) number of classes in a frequency distribution.

Answer: B

Diff: 1

Keywords: frequency distribution, grouped data, bins

Reference: Page 35

74) When you want to compare the shape of two or more distributions on one graph, a _____ is your best choice

- A) frequency distribution
- B) histogram
- C) percentage polygon
- D) relative frequency distribution

Answer: C

Diff: 1

Keywords: percentage polygon

Reference: Page 36

75) The _____ graphs the midpoint of each class as a line rather than a column.

- A) bar chart
- B) histogram
- C) scatter plot
- D) percentage polygon

Answer: D

Diff: 1

Keywords: percentage polygon

Reference: Page 36

76) The _____ is a line graph that plots the cumulative relative frequency distribution.

- A) ogive
- B) histogram
- C) scatter plot
- D) percentage polygon

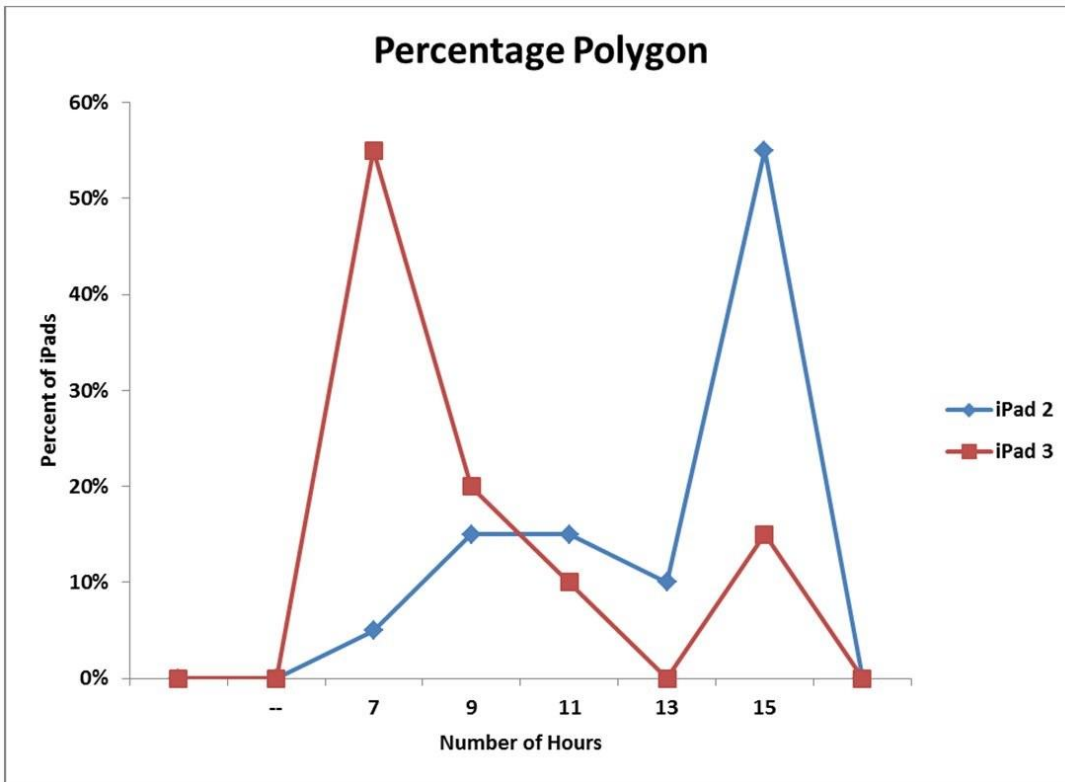
Answer: A

Diff: 1

Keywords: ogive

Reference: Page 37

77) The following graph is a percent polygon showing the battery life, in hours, for a sample of iPad 2s and iPad 3s. The diamond markers represent the iPad 2 battery life while the square markers represent the iPad 3 battery life. Based on this graph, which of the following statements is true?



- A) The battery life of the iPad 3 tends to be longer than the battery life of the iPad 2.
- B) The battery life of the iPad 3 tends to be about the same as the battery life of the iPad 2.
- C) The battery life of the iPad 2 tends to be longer than the battery life of the iPad 3.
- D) The difference in battery life between the iPad 2 and iPad 3 cannot be detected with this graph.

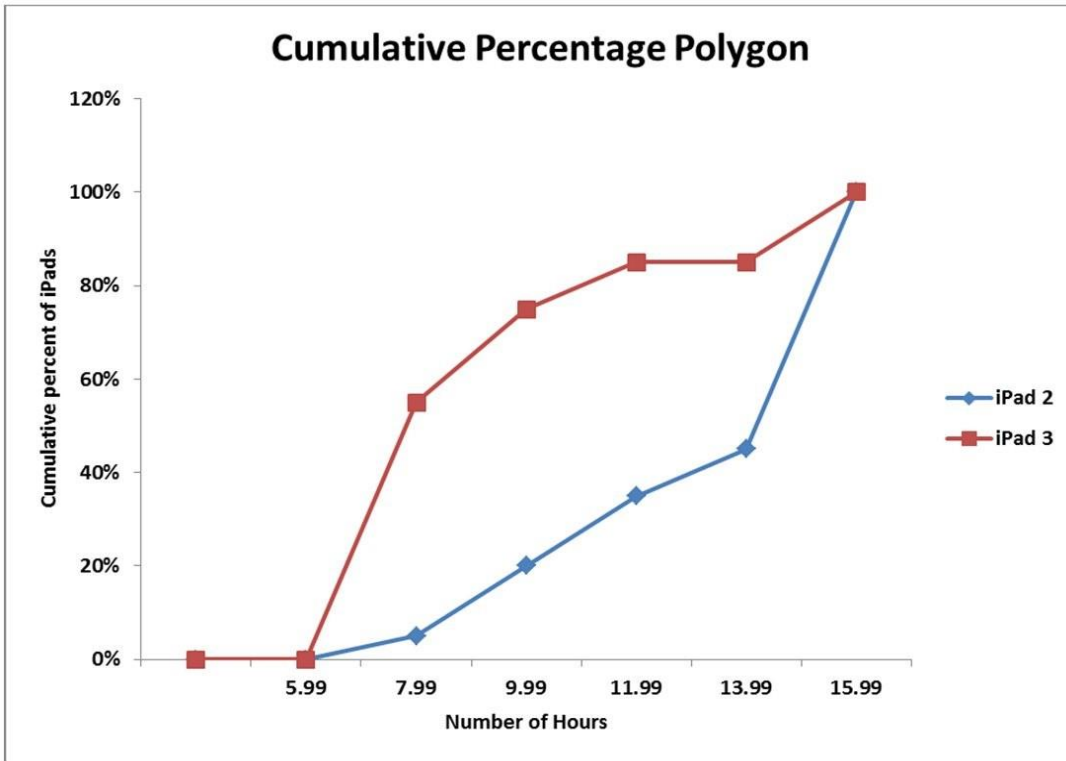
Answer: C

Diff: 2

Keywords: percent polygon

Reference: Page 37

78) The following graph is a cumulative percent polygon showing the battery life, in hours, for a sample of iPad 2s and iPad 3s. The diamond markers represent the iPad 2 battery life while the square markers represent the iPad 3 battery life. Based on this graph, which of the following statements is true?



- A) Approximately 20% of the iPad 2 batteries lasted more than 10 hours.
- B) Approximately 20% of the iPad 2 batteries lasted less than 10 hours.
- C) Approximately 60% of the iPad 3 batteries lasted more than 8 hours.
- D) Approximately 80% of the iPad 3 batteries lasted less than 8 hours.

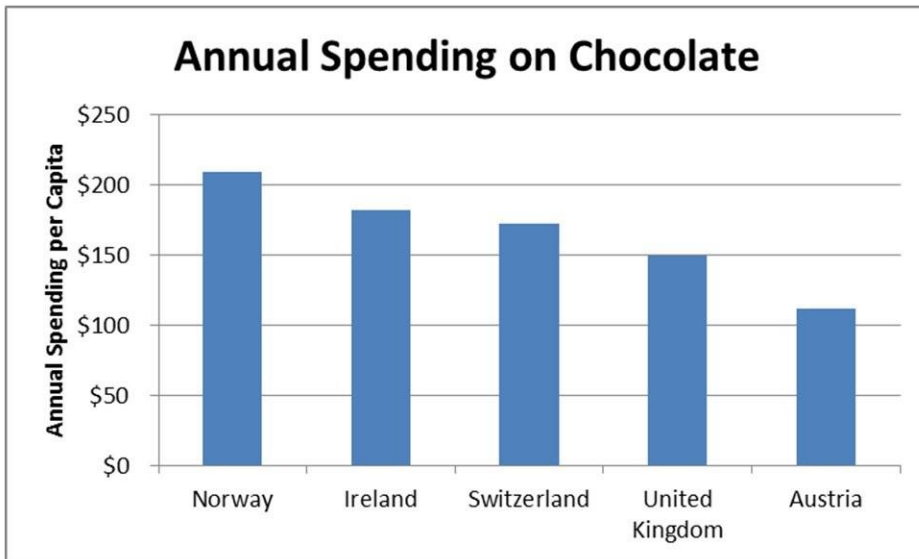
Answer: B

Diff: 2

Keywords: percent polygon

Reference: Page 37

79) The following chart shows the annual spending per person on chocolate in 2011.



This chart is an example of a

- A) horizontal bar chart.
- B) stacked bar chart.
- C) clustered bar chart.
- D) vertical bar chart.

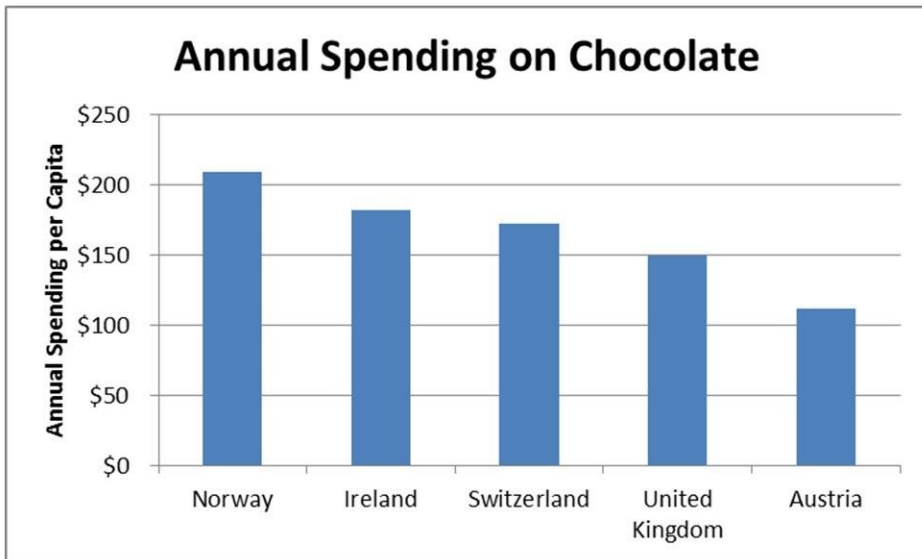
Answer: D

Diff: 1

Keywords: vertical bar charts

Reference: Page 45

80) The following chart shows the annual spending per person on chocolate in 2011.



Which of the following statements is **not** correct?

- A) Norway has the largest spending per capital on chocolate in 2011.
- B) The United Kingdom has more spending per capita than Ireland on chocolate in 2011.
- C) Austria has the lowest spending per capital on chocolate in 2011.
- D) Ireland has less spending per capita than Norway on chocolate in 2011.

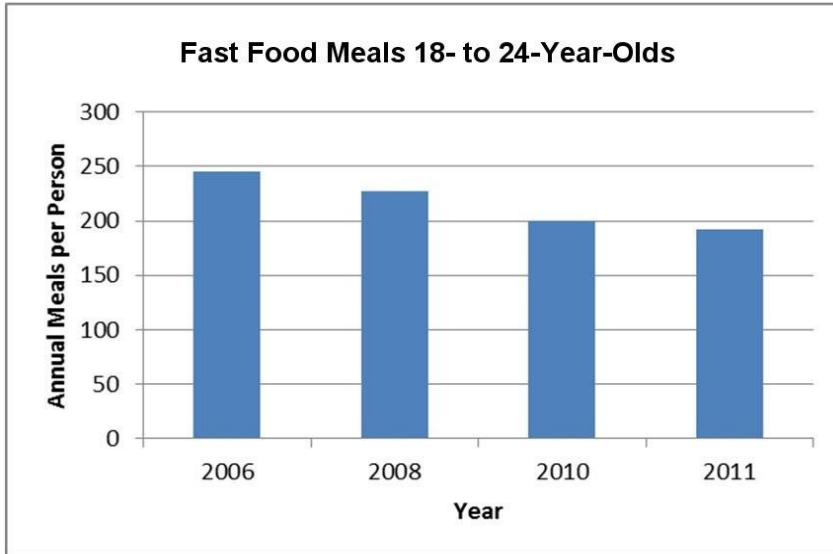
Answer: B

Diff: 1

Keywords: vertical bar charts

Reference: Page 45

81) The following chart shows the average number of fast food meals consumed per year by 18- to 24-year-olds.



This chart is an example of a

- A) horizontal bar chart.
- B) vertical bar chart.
- C) stacked bar chart.
- D) Pareto chart.

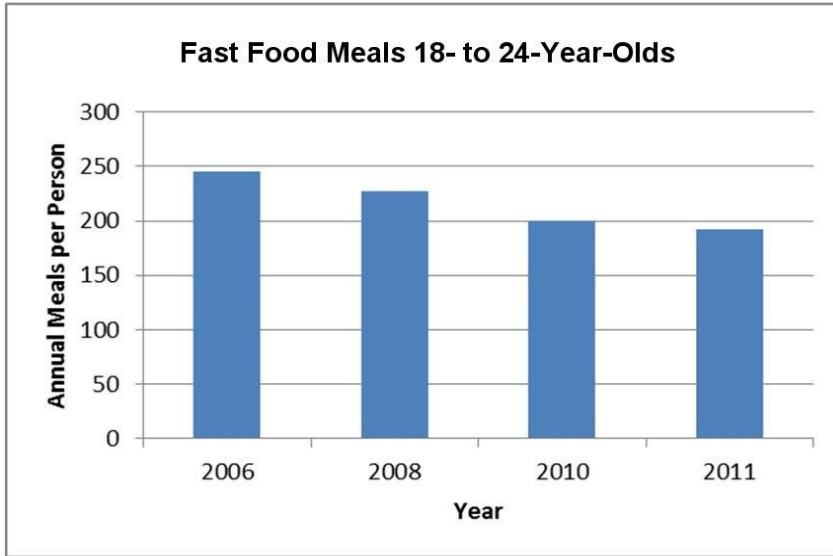
Answer: B

Diff: 1

Keywords: vertical bar charts

Reference: Page 45

82) The following chart shows the average number of fast food meals consumed per year by 18- to 24-year-olds.



Which of the following statements is **not** correct?

- A) The average number of meals consumed per person has decreased over time.
- B) The lowest average number of meals consumed per person occurred in 2011.
- C) The highest average number of meals consumed per person occurred in 2011.
- D) The highest average number of meals consumed per person occurred in 2006.

Answer: C

Diff: 1

Keywords: vertical bar charts

Reference: Page 45

83) The following chart shows the average market price for five brands of cars in March 2012.



This chart is an example of a

- A) horizontal bar chart.
- B) stacked bar chart.
- C) clustered bar chart.
- D) vertical bar chart.

Answer: A

Diff: 1

Keywords: horizontal bar charts

Reference: Page 45

84) The following chart shows the average market price for five brands of cars in March 2012.



Which of the following statements is **not** correct?

- A) The Nissan Versa has the lowest average market value.
- B) The Kia Soul has a higher average market price than the Ford Fiesta.
- C) The Hyundai Accent has a lower average market price than the Toyota Yaris.
- D) The Hyundai Accent has a lower average market price than the Nissan Versa.

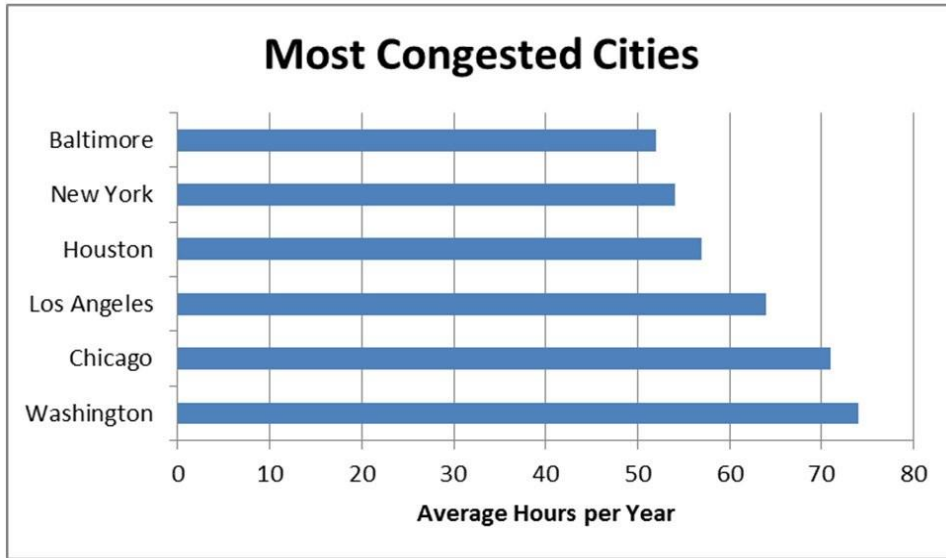
Answer: D

Diff: 1

Keywords: vertical bar charts

Reference: Page 45

85) The following chart shows the average number of hours commuters spend in traffic delays per year at the six most congested cities in the U.S.



This chart is an example of a

- A) stacked bar chart.
- B) horizontal bar chart.
- C) Pareto chart.
- D) vertical bar chart.

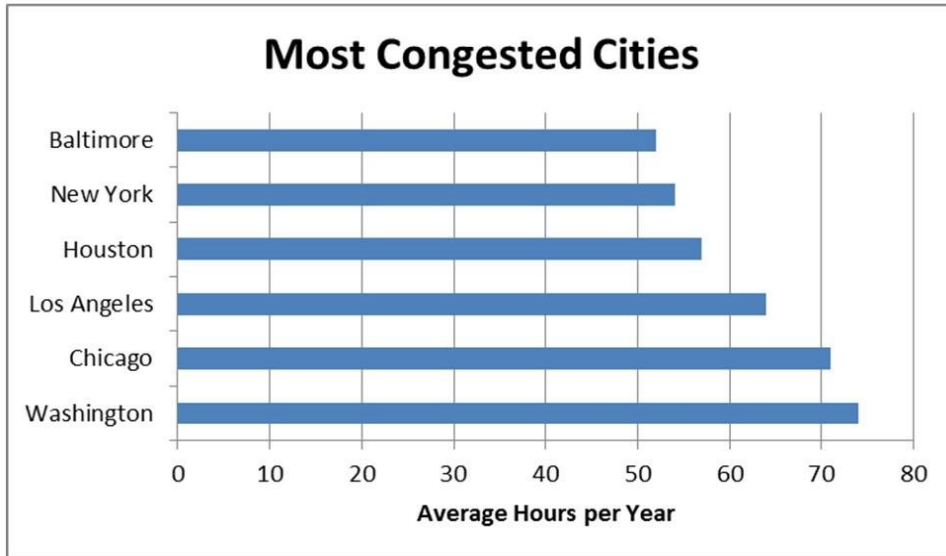
Answer: B

Diff: 1

Keywords: horizontal bar charts

Reference: Page 45

86) The following chart shows the average number of hours commuters spend in traffic delays per year at the six most congested cities in the U.S.



Which of the following statements is **not** correct?

- A) Chicago commuters have the highest average number of hours spent per year in traffic delays.
- B) Baltimore commuters have the lowest average number of hours spent per year in traffic delays.
- C) Houston commuters have a higher average number of hours spent per year in traffic delays when compared to New York commuters.
- D) Los Angeles commuters have a lower average number of hours spent per year in traffic delays when compared to Washington commuters.

Answer: A

Diff: 1

Keywords: vertical bar charts

Reference: Page 45

87) _____ group several values side by side within the same category in a vertical direction.

- A) Stacked bar charts
- B) Clustered bar charts
- C) Pie charts
- D) Scatter plots

Answer: B

Diff: 1

Keywords: clustered bar charts

Reference: Page 46

88) _____ group several values in a single column within the same category in a vertical direction.

- A) Stacked bar charts
- B) Clustered bar charts
- C) Pie charts
- D) Scatter plots

Answer: A

Diff: 1

Keywords: stacked bar charts

Reference: Page 47

89) _____ are a specific type of bar chart used in quality control programs by businesses to graphically display the causes of problems.

- A) Stacked bar charts
- B) Clustered bar charts
- C) Pie charts
- D) Pareto charts

Answer: D

Diff: 1

Keywords: Pareto charts

Reference: Page 48

90) Pareto charts also plot the cumulative relative frequency as a line on the chart. This line is known as a(n)

- A) scatter plot.
- B) ogive.
- C) histogram.
- D) frequency distribution.

Answer: B

Diff: 1

Keywords: Pareto charts, ogive

Reference: Page 48

91) Use a _____ chart if you want to compare the relative sizes of the classes in a frequency distribution and together they comprise all possible categories.

- A) horizontal bar
- B) vertical bar
- C) Pareto
- D) pie

Answer: D

Diff: 1

Keywords: pie charts

Reference: Page 53

92) The following table shows the percentage of e-mails that are sent each day of the business week according to an Intermedia survey.

| Day | Percentage |
|-----------|------------|
| Monday | 15% |
| Tuesday | 23% |
| Wednesday | 22% |
| Thursday | 21% |
| Friday | 19% |

Which of the following best displays this data?

- A) horizontal bar chart
- B) vertical bar chart
- C) pie chart
- D) histogram

Answer: C

Diff: 1

Keywords: pie charts

Reference: Page 53

93) The following table shows the percentage of U.S. energy consumption according to sources in 2009.

| Source | Percentage |
|---------------|------------|
| Petroleum | 37% |
| Natural Gas | 25% |
| Coal | 21% |
| Nuclear | 9% |
| All renewable | 8% |

Which of the following best displays this data?

- A) horizontal bar chart
- B) vertical bar chart
- C) pie chart
- D) histogram

Answer: C

Diff: 1

Keywords: pie charts

Reference: Page 53

94) _____ provide a format to display observations that have more than one value associated with them.

- A) Histograms
- B) Contingency tables
- C) Frequency distributions
- D) Pie charts

Answer: B

Diff: 1

Keywords: contingency tables

Reference: Page 56

95) In Excel, contingency tables are known as

- A) pivot tables.
- B) bins.
- C) frequency distributions.
- D) bar charts.

Answer: A

Diff: 1

Keywords: contingency tables

Reference: Page 57

96) Porter Automotive is a car dealership that sells Buicks and Hondas. The following data shows the number of buyers this month according to the brand of car they purchased as well as their age group.

| Age | Buick | Honda |
|--------------------|-------|-------|
| Under 40 years old | 6 | 9 |
| 40 years or older | 17 | 11 |

This data is an example of a

- A) histogram.
- B) contingency table.
- C) relative frequency distribution.
- D) stem and leaf diagram.

Answer: B

Diff: 1

Keywords: contingency tables

Reference: Page 56

97) A stem and leaf display most resembles a

- A) histogram.
- B) contingency table.
- C) relative frequency distribution.
- D) pie chart.

Answer: A

Diff: 1

Keywords: stem and leaf display

Reference: Page 61

98) Consider the following stem and leaf display.

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

Which data value occurs most often?

- A) 1
- B) 5
- C) 31
- D) 59

Answer: C

Diff: 1

Keywords: stem and leaf display

Reference: Page 61

99) Consider the following stem and leaf display.

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

Which of the following statements is correct?

- A) There are a total of 10 data values in this data set.
- B) The data value that occurs most often is 50.
- C) This largest data value is 59.
- D) The class 50-59 contains the most values.

Answer: D

Diff: 1

Keywords: stem and leaf display

Reference: Page 61

100) Consider the following stem and leaf display.

1(0) | 2 4 4
1(5) | 6 6 7 8
2(0) | 0 0 1 1 1 2 2
2(5) | 5 5 7 8
3(0) | 0 1 3 4

Which data value occurs most often?

- A) 1
- B) 21
- C) 22
- D) 200

Answer: B

Diff: 1

Keywords: stem and leaf display

Reference: Page 61

101) Consider the following stem and leaf display.

1(0) | 2 4 4
1(5) | 6 6 7 8
2(0) | 0 0 1 1 1 2 2
2(5) | 5 5 7 8
3(0) | 0 1 3 4

Which of the following statements is correct?

- A) There are a total of 10 data values in this data set.
- B) The data value that occurs most often is 22.
- C) This largest data value is 34.
- D) The class 15-19 contains the most values.

Answer: C

Diff: 1

Keywords: stem and leaf display

Reference: Page 61

102) _____ provide a picture of the relationship between two data points that are paired together.

- A) Scatter plots
- B) Pareto charts
- C) Histograms
- D) Pie charts

Answer: A

Diff: 1

Keywords: scatter plots

Reference: Page 61

103) A _____ is a special type of scatter plot in which the data points in the scatter plot are connected with a line.

- A) bar chart
- B) Pareto chart
- C) line chart
- D) pie chart

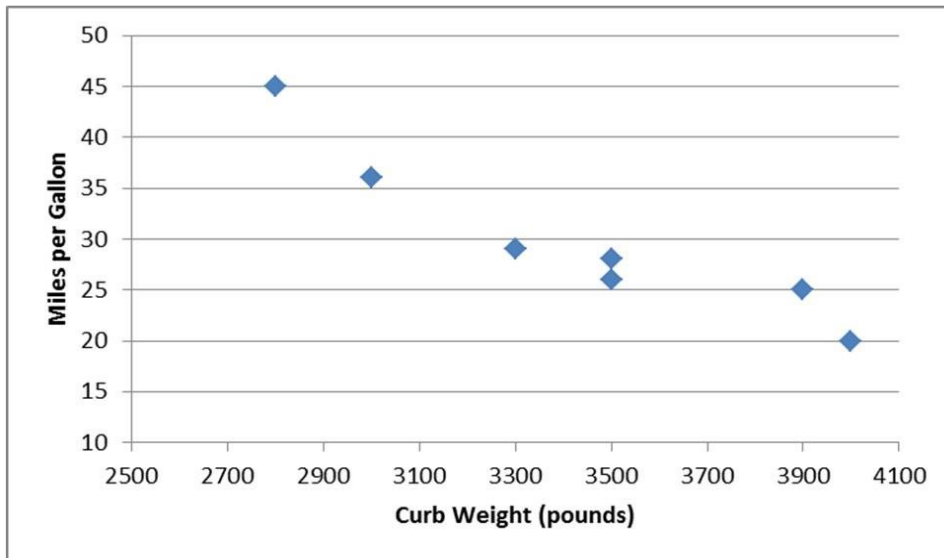
Answer: C

Diff: 1

Keywords: scatter plot, line chart

Reference: Page 64

104) The following graph shows the curb weight of seven cars, in pounds, along with their corresponding highway miles per gallon.



This graph is an example of a

- A) line chart.
- B) scatter plot.
- C) Pareto chart.
- D) histogram.

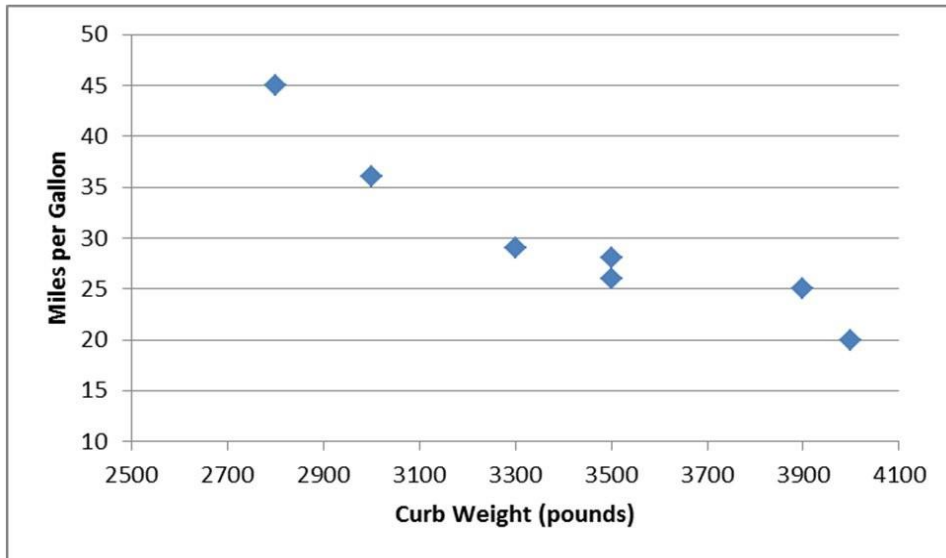
Answer: B

Diff: 1

Keywords: scatter plots

Reference: Page 64

105) The following graph shows the curb weight of seven cars, in pounds, along with their corresponding highway miles per gallon.



Which one of the following statements is correct?

- A) Curb weight is the dependent variable in the graph.
- B) Miles per gallon is the independent variable in the graph.
- C) As the curb weight increases, the highway miles per gallon tend to decrease.
- D) As the curb weight increases, the highway miles per gallon tend to increase.

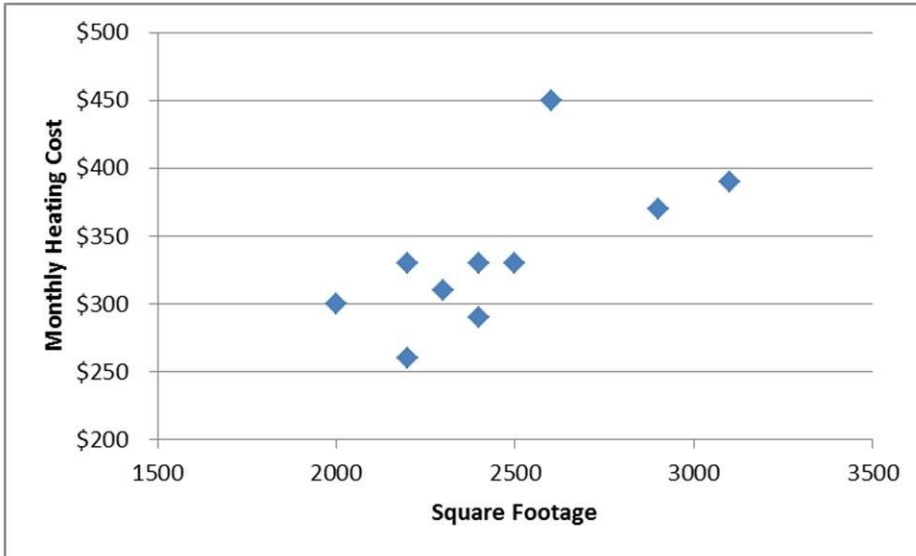
Answer: C

Diff: 1

Keywords: scatter plots

Reference: Page 64

106) The following graph shows the square footage of 10 homes along with their corresponding heating cost for the most recent month.



This graph is an example of a

- A) line chart.
- B) horizontal bar chart.
- C) Pareto chart.
- D) scatter plot.

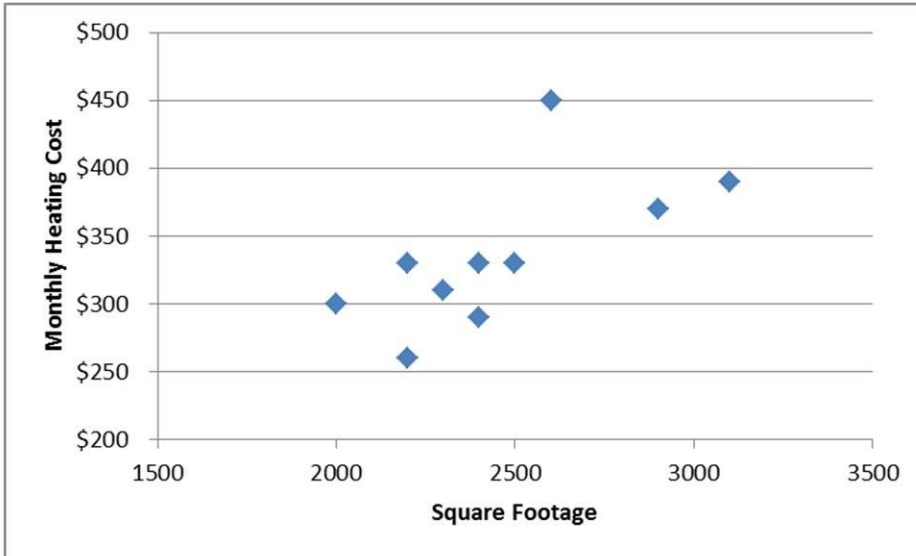
Answer: D

Diff: 1

Keywords: scatter plots

Reference: Page 64

107) The following graph shows the square footage of 10 homes along with their corresponding heating cost for the most recent month.



Which one of the following statements is **not** correct?

- A) Monthly heating cost is the dependent variable in the graph.
- B) Square footage is the independent variable in the graph.
- C) As the square footage of the home increases, the monthly heating cost tends to increase.
- D) As the square footage of the home increases, the monthly heating cost tends to decrease.

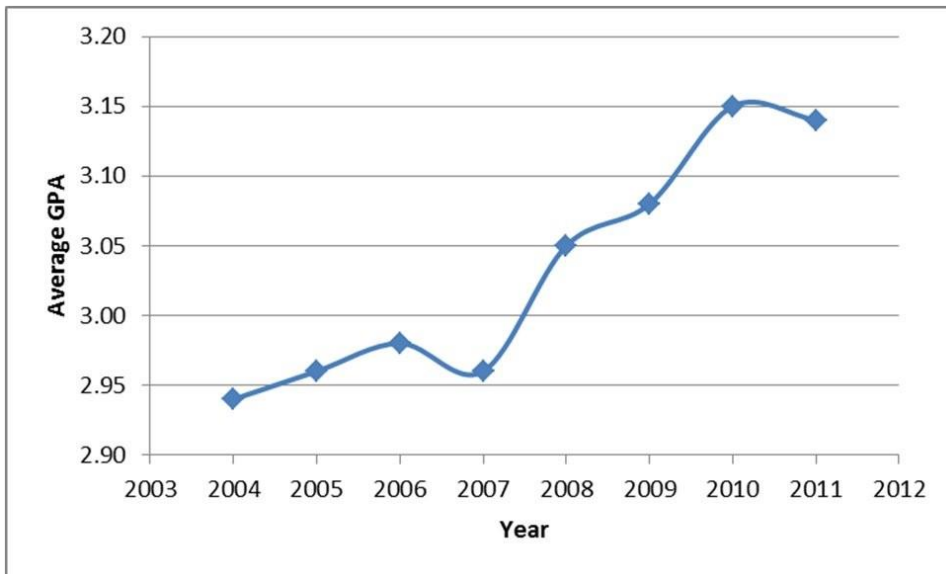
Answer: D

Diff: 1

Keywords: scatter plots

Reference: Page 64

108) The following graph shows the average grade point average for a particular college from 2004 until 2011.



This graph is an example of a

- A) line chart.
- B) vertical bar chart.
- C) Pareto chart.
- D) histogram.

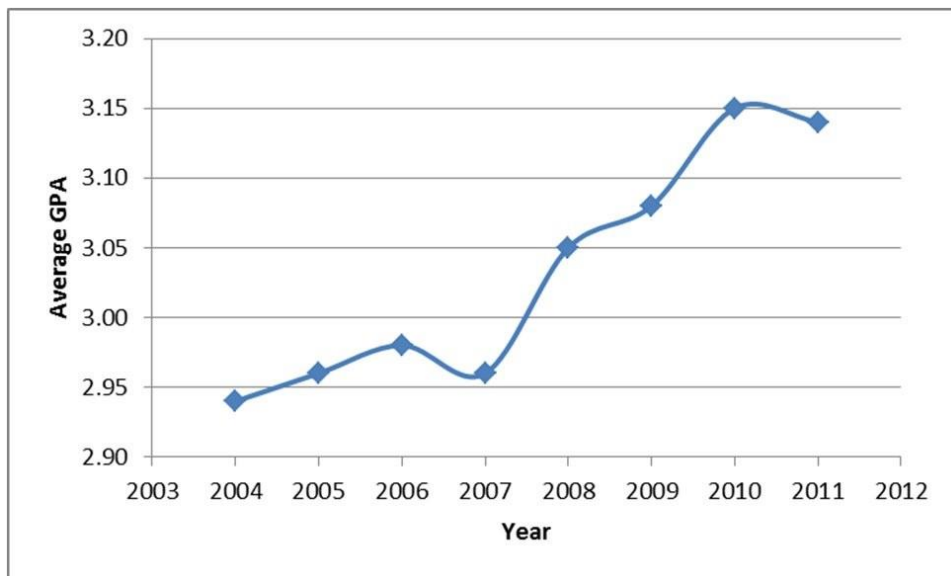
Answer: A

Diff: 1

Keywords: line chart

Reference: Page 64

109) The following graph shows the average grade point average for a particular college from 2004 until 2011.



Which one of the following statements is correct?

- A) Average GPA is the dependent variable in the graph.
- B) Year is the dependent variable in the graph.
- C) Historically, the Average GPA of the college tends to decrease.
- D) There appears to be no relationship between Year and Average GPA.

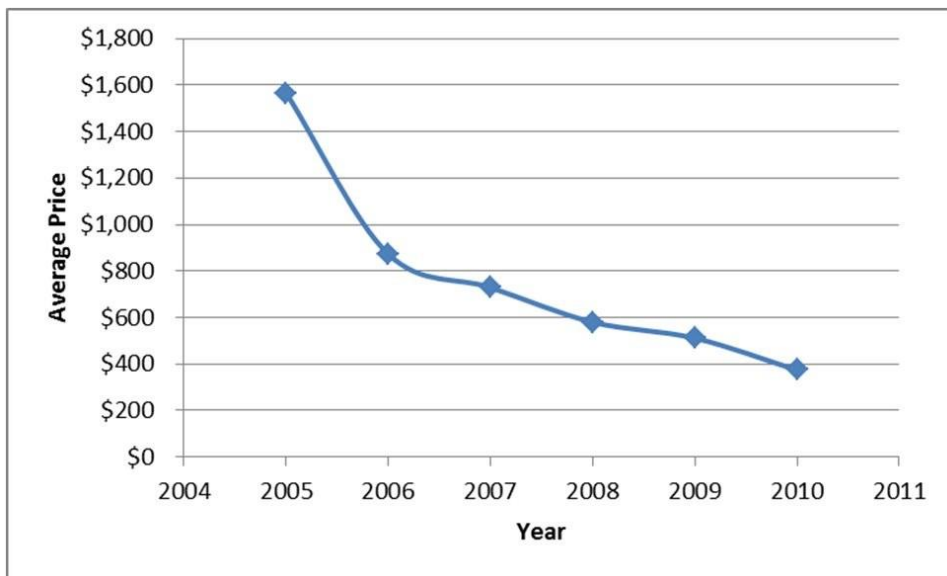
Answer: A

Diff: 1

Keywords: line chart

Reference: Page 64

110) The following graph shows the average price of LCD TVs from 2005 until 2010.



This graph is an example of a

- A) histogram.
- B) vertical bar chart.
- C) Pareto chart.
- D) line chart.

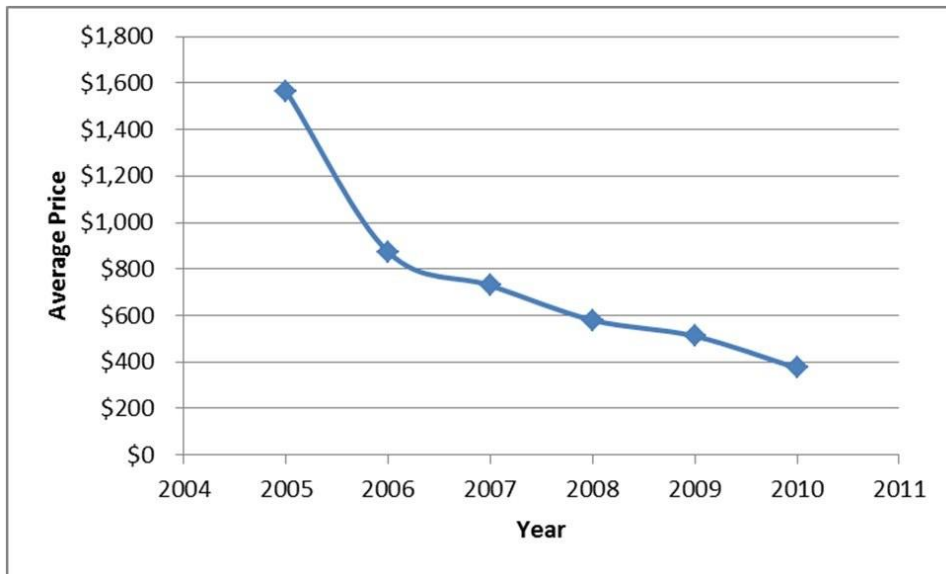
Answer: D

Diff: 1

Keywords: line chart

Reference: Page 64

111) The following graph shows the average price of LCD TVs from 2005 until 2010.



Which one of the following statements is correct?

- A) Year is the dependent variable in the graph.
- B) Average Price is the independent variable in the graph.
- C) Historically, the average price of LCD TVs tends to increase.
- D) Historically, the average price of LCD TVs tends to decrease.

Answer: D

Diff: 1

Keywords: scatter plots

Reference: Page 64

112) The following data shows the number of students that came to office hours per day for a particular faculty member.

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

Construct a frequency distribution for this data.

Answer:

| Number of Students | Frequency |
|--------------------|-----------|
| 0 | 10 |
| 1 | 7 |
| 2 | 4 |
| 3 | 3 |
| 4 | 1 |
| Total | 25 |

Diff: 1

Keywords: frequency distribution

Reference: Page 23

113) The following data shows the number of students that came to office hours per day for a particular faculty member.

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

Construct a relative frequency distribution for this data and determine the probability that one student will come to office hours today.

Answer:

| Number of Students | Frequency | Relative Frequency |
|--------------------|-----------|--------------------|
| 0 | 10 | 0.40 |
| 1 | 7 | 0.28 |
| 2 | 4 | 0.16 |
| 3 | 3 | 0.12 |
| 4 | 1 | 0.04 |
| Total | 25 | 1.00 |

$$P(x = 1) = 0.28$$

Diff: 1

Keywords: relative frequency distributions

Reference: Page 23

114) The following data shows the number of students that came to office hours per day for a particular faculty member.

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

Construct a cumulative relative frequency distribution for this data and determine the probability that fewer than three students will come to office hours today.

Answer:

| Number of Students | Frequency | Relative Frequency | Cumulative Relative Frequency |
|--------------------|-----------|--------------------|-------------------------------|
| 0 | 10 | 0.40 | 0.40 |
| 1 | 7 | 0.28 | 0.68 |
| 2 | 4 | 0.16 | 0.84 |
| 3 | 3 | 0.12 | 0.96 |
| 4 | 1 | 0.04 | 1.00 |
| Total | 25 | 1.00 | |

$$P(x < 3) = 0.84$$

Diff: 1

Keywords: cumulative relative frequency distributions

Reference: Page 23

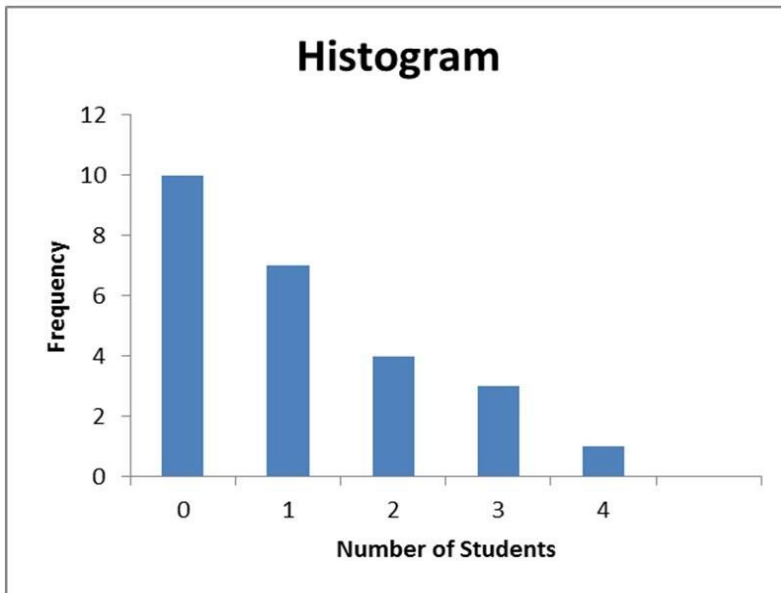
115) The following data shows the number of students that came to office hours per day for a particular faculty member.

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

Construct a histogram for this data.

Answer:

| Number of Students | Frequency |
|--------------------|-----------|
| 0 | 10 |
| 1 | 7 |
| 2 | 4 |
| 3 | 3 |
| 4 | 1 |
| Total | 25 |



Diff: 1

Keywords: frequency distribution

Reference: Page 23

116) The following data show the number of pairs of men's New Balance sneakers that were sold over the last 25 weeks at a discount shoe store.

1 4 6 6 8 8 9 11 11 11 12 12 14
 14 14 15 17 17 17 19 19 20 21 24 24

Construct a frequency distribution for this data.

Answer: Set $k = 5$ because $25 = 32 > 25$.

$$\text{Estimated Class Width} = \frac{24 - 1}{5} = 4.6 \approx 5$$

| Number of Pairs | Frequency |
|-----------------|-----------|
| 1-5 | 2 |
| 6-10 | 5 |
| 11-15 | 9 |
| 16-20 | 6 |
| 21-25 | 3 |
| Total | 25 |

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

117) The following data show the number of pairs of men's New Balance sneakers that were sold over the last 25 weeks at a discount shoe store.

1 4 6 6 8 8 9 11 11 11 12 12 14
 14 14 15 17 17 17 19 19 20 21 24 24

Construct a relative frequency distribution for this data and determine the probability that between 6 to 10 pairs of New Balance shoes will be sold next week.

Answer: Set $k = 5$ because $25 = 32 > 25$.

$$\text{Estimated Class Width} = \frac{24 - 1}{5} = 4.6 \approx 5$$

| Number of Pairs | Frequency | Relative Frequency |
|-----------------|-----------|--------------------|
| 1-5 | 2 | 0.08 |
| 6-10 | 5 | 0.20 |
| 11-15 | 9 | 0.36 |
| 16-20 | 6 | 0.24 |
| 21-25 | 3 | 0.12 |
| Total | 25 | 1.00 |

$$P(6 \leq x \leq 10) = 0.20$$

Diff: 1

Keywords: relative frequency distribution, grouped data

Reference: Page 32

118) The following data show the number of pairs of men's New Balance sneakers that were sold over the last 25 weeks at a discount shoe store.

1 4 6 6 8 8 9 11 11 11 12 12 14
 14 14 15 17 17 17 19 19 20 21 24 24

Construct a cumulative relative frequency distribution for this data and determine the probability that 15 or fewer pairs of New Balance shoes will be sold next week.

Answer: Set $k = 5$ because $25 = 32 > 25$.

$$\text{Estimated Class Width} = \frac{24 - 1}{5} = 4.6 \approx 5$$

| Number of Pairs | Frequency | Relative Frequency | Cumulative Relative Frequency |
|-----------------|-----------|--------------------|-------------------------------|
| 1-5 | 2 | 0.08 | 0.08 |
| 6-10 | 5 | 0.20 | 0.28 |
| 11-15 | 9 | 0.36 | 0.64 |
| 16-20 | 6 | 0.24 | 0.88 |
| 21-25 | 3 | 0.12 | 1.00 |
| Total | 25 | 1.00 | |

$$P(x \leq 15) = 0.64$$

Diff: 1

Keywords: relative frequency distribution, grouped data

Reference: Page 32

119) The following data show the number of pairs of men's New Balance sneakers that were sold over the last 25 weeks at a discount shoe store.

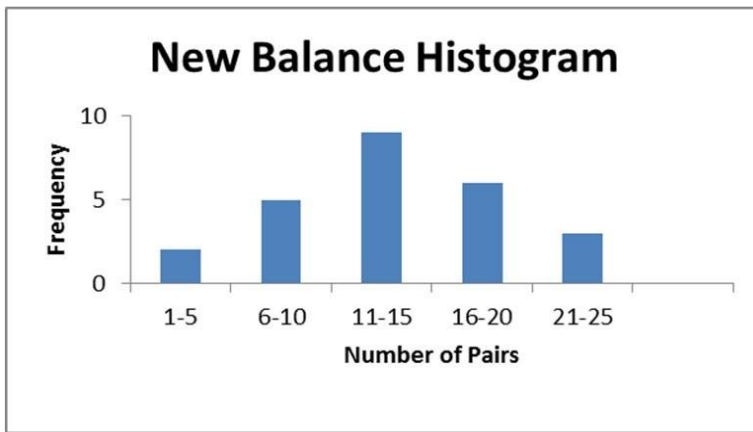
1 4 6 6 8 8 9 11 11 11 12 12 14
 14 14 15 17 17 17 19 19 20 21 24 24

Construct a histogram for this data.

Answer: Set $k = 5$ because $25 = 32 > 25$.

$$\text{Estimated Class Width} = \frac{24 - 1}{5} = 4.6 \approx 5$$

| Number of Pairs | Frequency |
|-----------------|-----------|
| 1-5 | 2 |
| 6-10 | 5 |
| 11-15 | 9 |
| 16-20 | 6 |
| 21-25 | 3 |
| Total | 25 |



Diff: 1

Keywords: relative frequency distribution, grouped data

Reference: Page 32

120) The following data show the monthly rental for a random sample of one-bedroom apartments in York, Pennsylvania.

\$600 \$615 \$660 \$660 \$675 \$680 \$690 \$700 \$720 \$725
 \$755 \$760 \$775 \$775 \$780 \$780 \$780 \$785 \$810 \$840

Construct a frequency distribution for this data.

Answer: Set $k = 5$ because $25 = 32 > 20$

$$\text{Estimated Class Width} = \frac{\$840 - \$600}{5} = \$48 \approx \$50$$

| Monthly Rent | Frequency |
|----------------------|-----------|
| \$600 to under \$650 | 2 |
| \$650 to under \$700 | 5 |
| \$700 to under \$750 | 3 |
| \$750 to under \$800 | 8 |
| \$800 to under \$850 | 2 |
| Total | 20 |

Diff: 1

Keywords: frequency distribution, grouped data

Reference: Page 32

121) The following data show the monthly rental for a random sample of one-bedroom apartments in York, Pennsylvania.

\$600 \$615 \$660 \$660 \$675 \$680 \$690 \$700 \$720 \$725
 \$755 \$760 \$775 \$775 \$780 \$780 \$780 \$785 \$810 \$840

Construct a relative frequency distribution for this data and determine the probability a randomly selected one-bedroom apartment will rent between \$700 and less than \$750 per month.

Answer: Set $k = 5$ because $25 = 32 > 20$

$$\text{Estimated Class Width} = \frac{\$840 - \$600}{5} = \$48 \approx \$50$$

| Monthly Rent | Frequency | Relative Frequency |
|----------------------|-----------|--------------------|
| \$600 to under \$650 | 2 | 0.10 |
| \$650 to under \$700 | 5 | 0.25 |
| \$700 to under \$750 | 3 | 0.15 |
| \$750 to under \$800 | 8 | 0.40 |
| \$800 to under \$850 | 2 | 0.10 |
| Total | 20 | 1.00 |

$$P(\$700 \leq x < \$750) = 0.15$$

Diff: 1

Keywords: relative frequency distribution, grouped data

Reference: Page 32

122) The following data show the monthly rental for a random sample of one-bedroom apartments in York, Pennsylvania.

\$600 \$615 \$660 \$660 \$675 \$680 \$690 \$700 \$720 \$725
 \$755 \$760 \$775 \$775 \$780 \$780 \$780 \$785 \$810 \$840

Construct a cumulative relative frequency distribution for this data and determine the probability a randomly selected one-bedroom apartment will rent for less than \$700 per month.

Answer: Set $k = 5$ because $25 = 32 > 20$

$$\text{Estimated Class Width} = \frac{\$840 - \$600}{5} = \$48 \approx \$50$$

| Monthly Rent | Frequency | Relative Frequency | Cumulative Relative Frequency |
|----------------------|-----------|--------------------|-------------------------------|
| \$600 to under \$650 | 2 | 0.10 | 0.10 |
| \$650 to under \$700 | 5 | 0.25 | 0.35 |
| \$700 to under \$750 | 3 | 0.15 | 0.50 |
| \$750 to under \$800 | 8 | 0.40 | 0.90 |
| \$800 to under \$850 | 2 | 0.10 | 1.00 |
| Total | 20 | 1.00 | |

$$P(x < \$700) = 0.35$$

Diff: 1

Keywords: cumulative relative frequency distributions, grouped data

Reference: Page 32

123) The following data show the monthly rental for a random sample of one-bedroom apartments in York, Pennsylvania.

\$600 \$615 \$660 \$660 \$675 \$680 \$690 \$700 \$720 \$725
 \$755 \$760 \$775 \$775 \$780 \$780 \$780 \$785 \$810 \$840

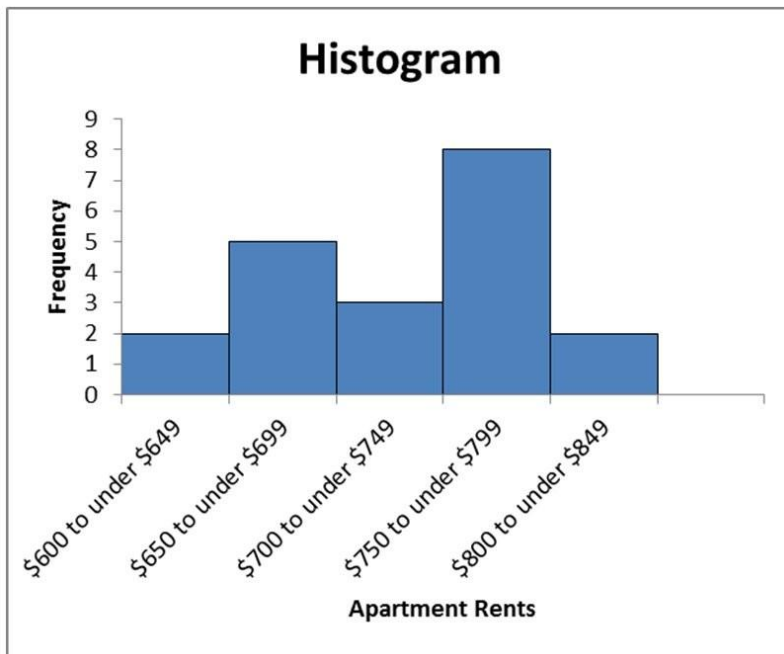
Construct a histogram for this data.

Answer:

Set $k = 5$ because $25 = 32 > 20$

$$\text{Estimated Class Width} = \frac{\$840 - \$600}{5} = \$48 \approx \$50$$

| Monthly Rent | Frequency |
|----------------------|-----------|
| \$600 to under \$650 | 2 |
| \$650 to under \$700 | 5 |
| \$700 to under \$750 | 3 |
| \$750 to under \$800 | 8 |
| \$800 to under \$850 | 2 |
| Total | 20 |



Diff: 1

Keywords: frequency distribution, grouped data

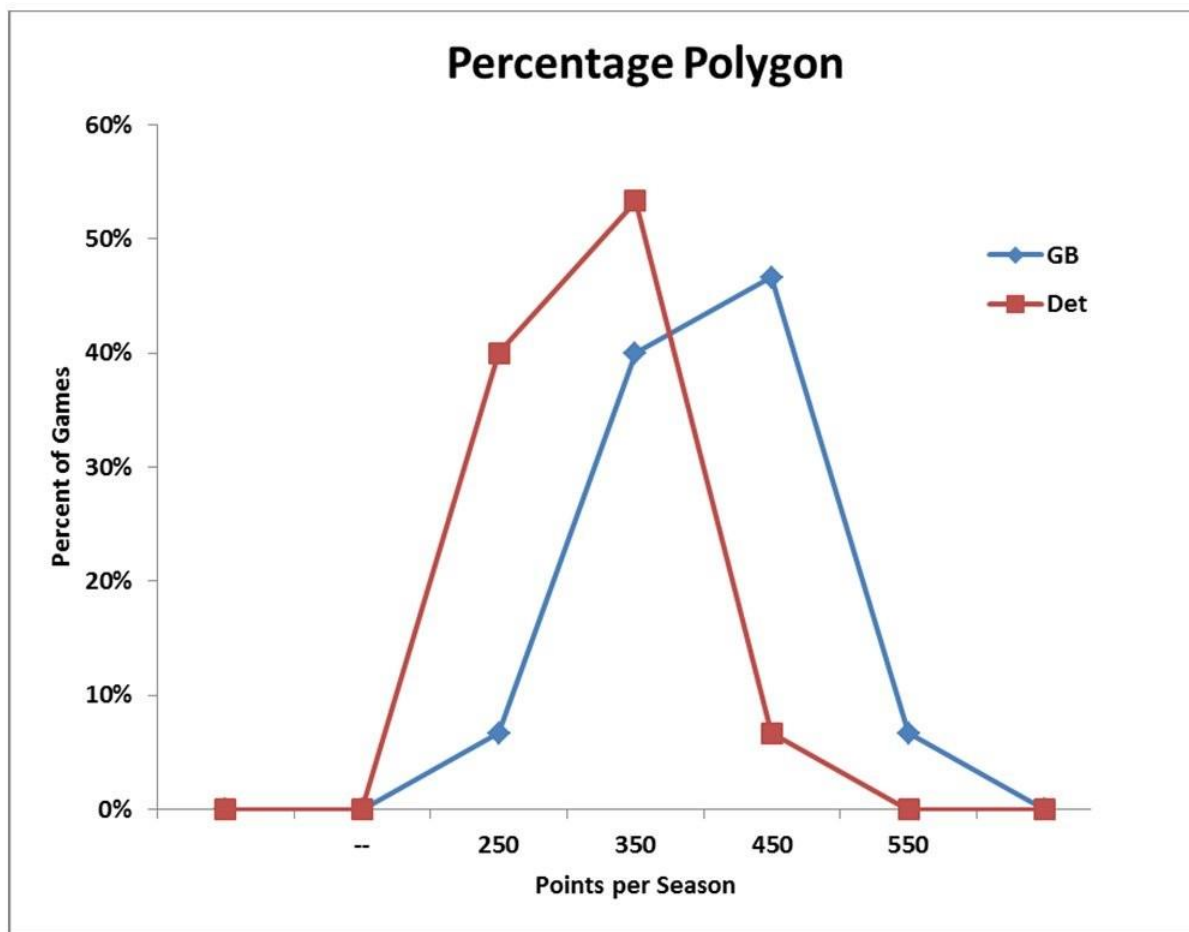
Reference: Page 32

124) The following table shows the number of points scored by the Green Bay Packers and the Detroit Lions of the National Football League for each season from 1997 until 2011.

| | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|
| Green Bay | | | | | | | |
| 560 | 388 | 461 | 419 | 435 | 301 | 298 | 424 |
| 442 | 398 | 390 | 353 | 357 | 408 | 422 | |
| Detroit | | | | | | | |
| 474 | 362 | 262 | 268 | 346 | 305 | 254 | 296 |
| 270 | 306 | 270 | 307 | 322 | 306 | 379 | |

Use four classes, each with a class width of 100. Start classes with 201-300, 301-400, and so on, and construct a percentage polygon. What conclusions can you draw comparing these two teams?

Answer:



Green Bay tended to score more points per season than Detroit during this time span.

Diff: 2

Keywords: percent polygon

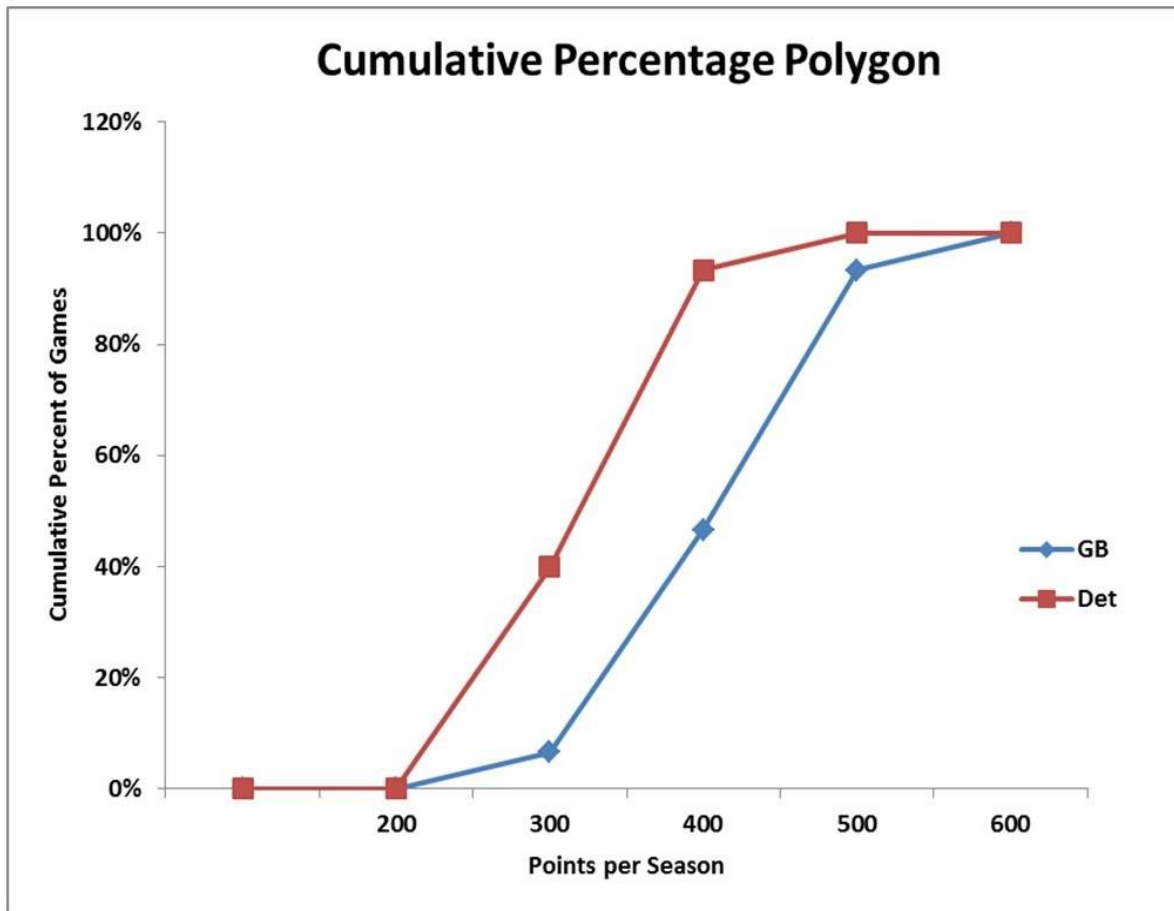
Reference: Page 37

125) The following table shows the number of points scored by the Green Bay Packers and the Detroit Lions of the National Football League for each season from 1997 until 2011.

| | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|
| Green Bay | | | | | | | |
| 560 | 388 | 461 | 419 | 435 | 301 | 298 | 424 |
| 442 | 398 | 390 | 353 | 357 | 408 | 422 | |
| Detroit | | | | | | | |
| 474 | 362 | 262 | 268 | 346 | 305 | 254 | 296 |
| 270 | 306 | 270 | 307 | 322 | 306 | 379 | |

Use four classes, each with a class width of 100. Start classes with 201-300, 301-400, and so on, and construct a cumulative percentage polygon. What conclusions can you draw comparing these two teams?

Answer:



Green Bay tended to score more points per season than Detroit during this time span.

Diff: 2

Keywords: cumulative percentage polygon

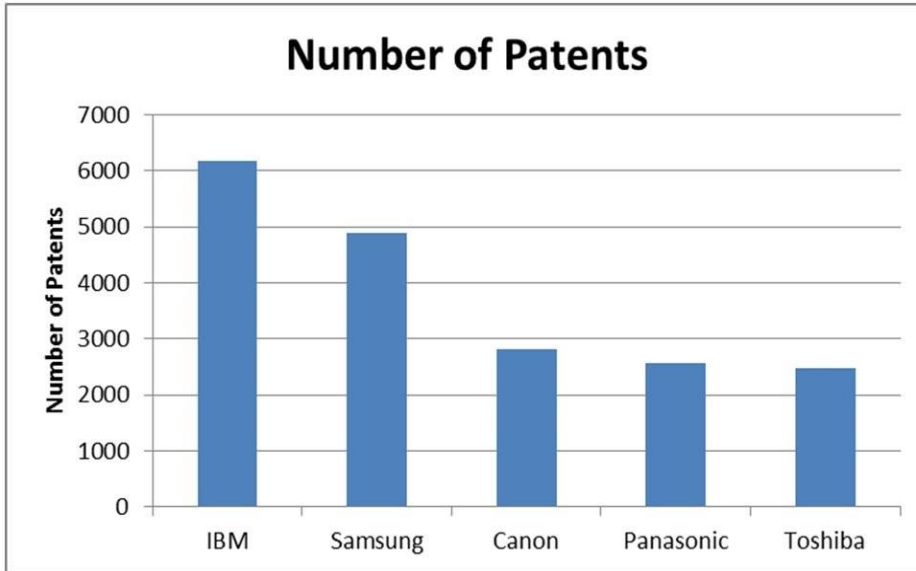
Reference: Page 37

126) The following table shows the number of patents that various corporations filed in 2011.

| Company | Number of Patents |
|-----------|-------------------|
| IBM | 6,180 |
| Samsung | 4,894 |
| Canon | 2,821 |
| Panasonic | 2,559 |
| Toshiba | 2,483 |

Construct the type of chart that would be most appropriate if the goal was to compare the number of patents among companies.

Answer:



Diff: 2

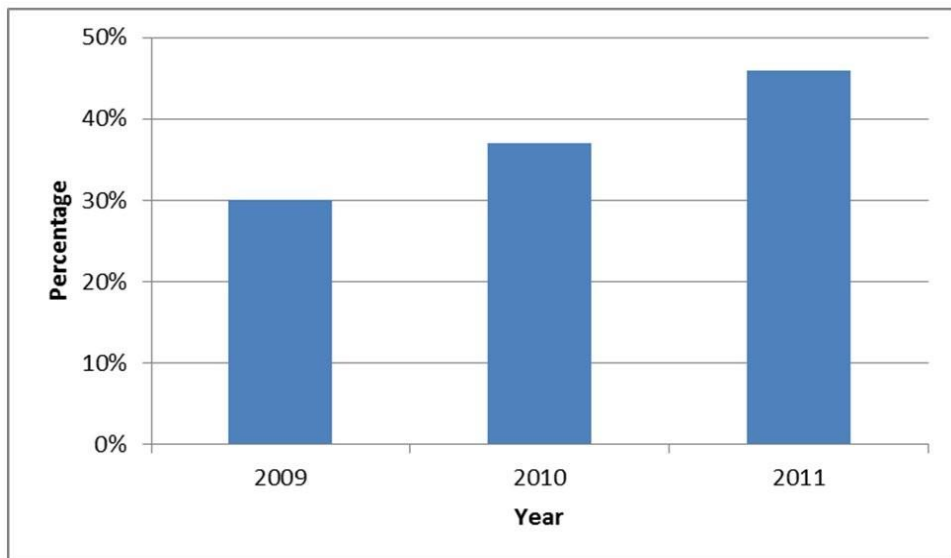
Keywords: bar charts

Reference: Page 43

127) The following table shows the percentage of enterprise companies issuing personal computers running the MAC OS X operating system.

| Year | Percentage |
|------|------------|
| 2009 | 30% |
| 2010 | 37% |
| 2011 | 46% |

Construct the type of chart that would be most appropriate if the goal was to compare the percentages over time.
Answer:



Diff: 2

Keywords: bar charts

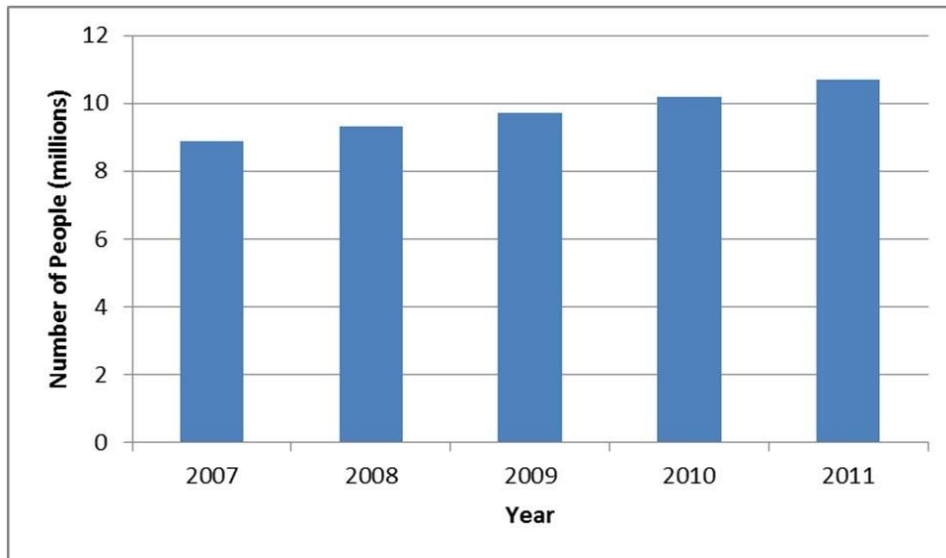
Reference: Page 43

128) The following table shows the number of people collecting Social Security disability benefits, in millions, over a five-year period.

| Year | Number of People (millions) |
|------|-----------------------------|
| 2007 | 8.9 |
| 2008 | 9.3 |
| 2009 | 9.7 |
| 2010 | 10.2 |
| 2011 | 10.7 |

Construct the type of chart that would be most appropriate if the goal was to compare the number of people collecting Social Security disability benefits over time.

Answer:



Diff: 2

Keywords: bar charts

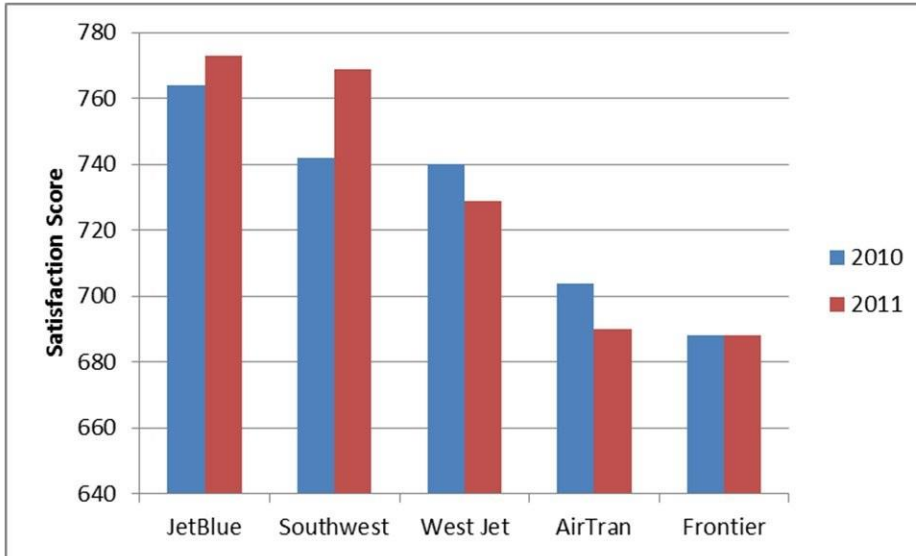
Reference: Page 43

129) The following table shows customer satisfaction scores for five airlines in 2010 and 2011.

| Airline | 2010 | 2011 |
|-----------|------|------|
| JetBlue | 764 | 773 |
| Southwest | 742 | 769 |
| West Jet | 740 | 729 |
| AirTran | 704 | 690 |
| Frontier | 688 | 688 |

Construct the type of chart that would be most appropriate if the goal was to investigate changes in satisfaction scores for each airline between the two years.

Answer:



Diff: 1

Keywords: clustered bar charts

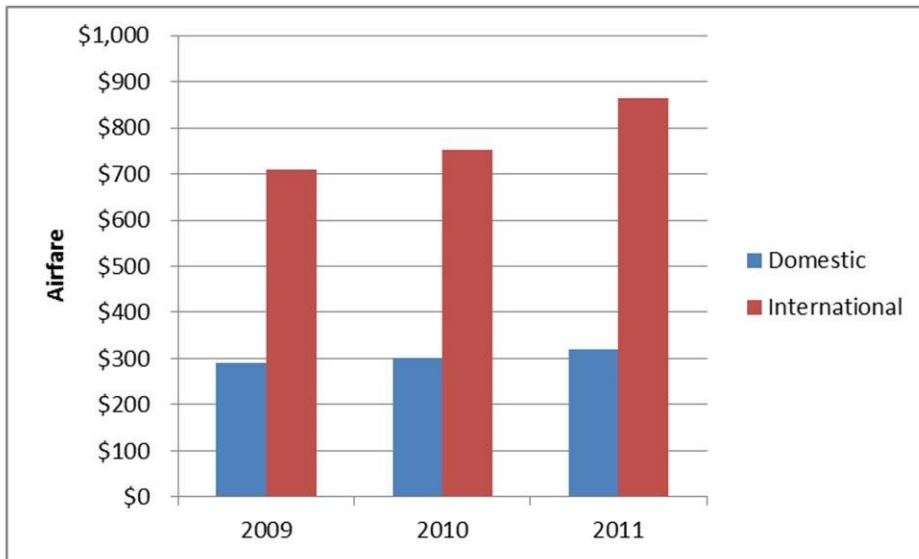
Reference: Page 47

130) The following table shows the average roundtrip airfare for domestic and international flights for each of three years.

| Year | Domestic | International |
|------|----------|---------------|
| 2009 | \$291 | \$710 |
| 2010 | \$302 | \$753 |
| 2011 | \$320 | \$863 |

Construct the type of chart that would be most appropriate if the goal was to compare the domestic and international airfare.

Answer:



Diff: 2

Keywords: clustered bar charts

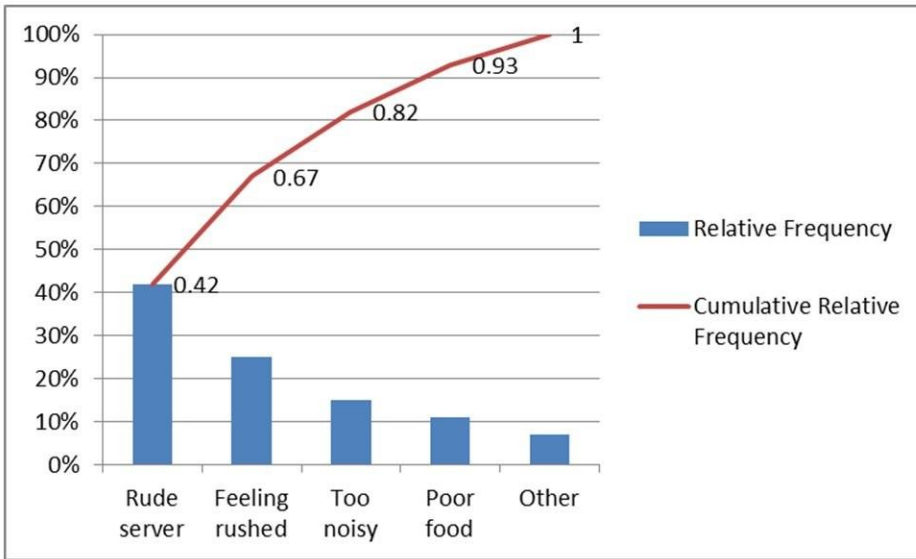
Reference: Page 46

131) The following table shows the number of complaints recorded at a restaurant over the past several years.

| Complaint | Frequency |
|----------------|-----------|
| Rude server | 42 |
| Feeling rushed | 25 |
| Too noisy | 15 |
| Poor food | 11 |
| Other | 7 |

Construct a Pareto chart to display this data.

Answer:



Diff: 2

Keywords: Pareto charts

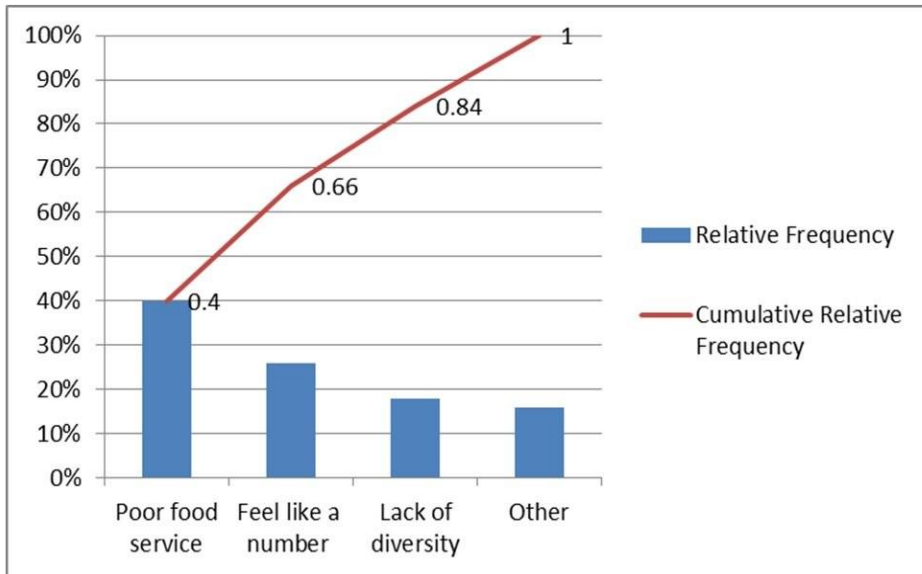
Reference: Page 48

132) The following table shows the number of complaints recorded at a college from the student body this past school year.

| Complaint | Frequency |
|--------------------|-----------|
| Poor food service | 20 |
| Feel like a number | 13 |
| Lack of diversity | 9 |
| Other | 8 |

Construct a Pareto chart to display this data.

Answer:



Diff: 2

Keywords: Pareto charts

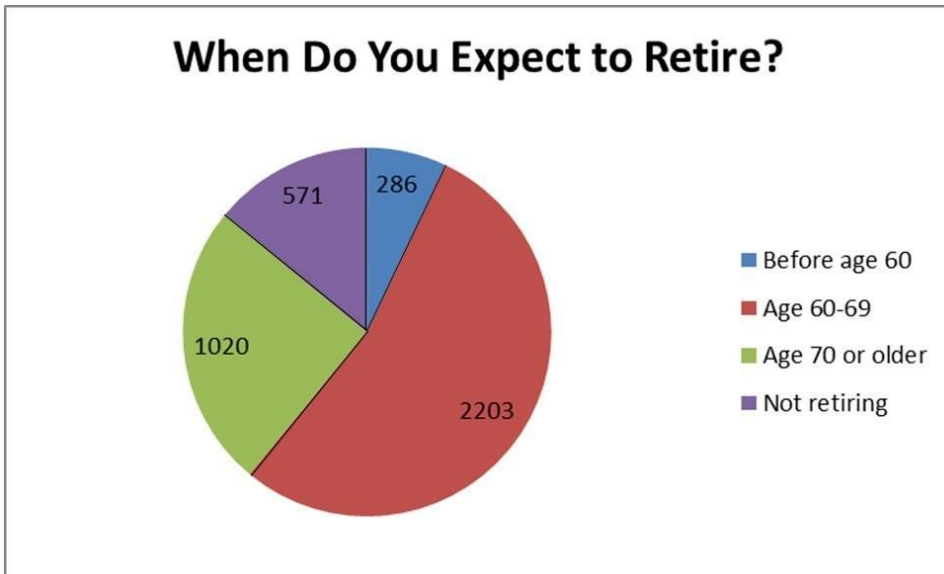
Reference: Page 48

133) A survey of 4,080 workers was asked when they expected to retire. The following table shows the frequency distribution of the respondents.

| Response | Frequency |
|-----------------|-----------|
| Before age 60 | 286 |
| Age 60-69 | 2,203 |
| Age 70 or older | 1,020 |
| Not retiring | 571 |

Construct a chart that best displays this data.

Answer:



Diff: 2

Keywords: pie charts

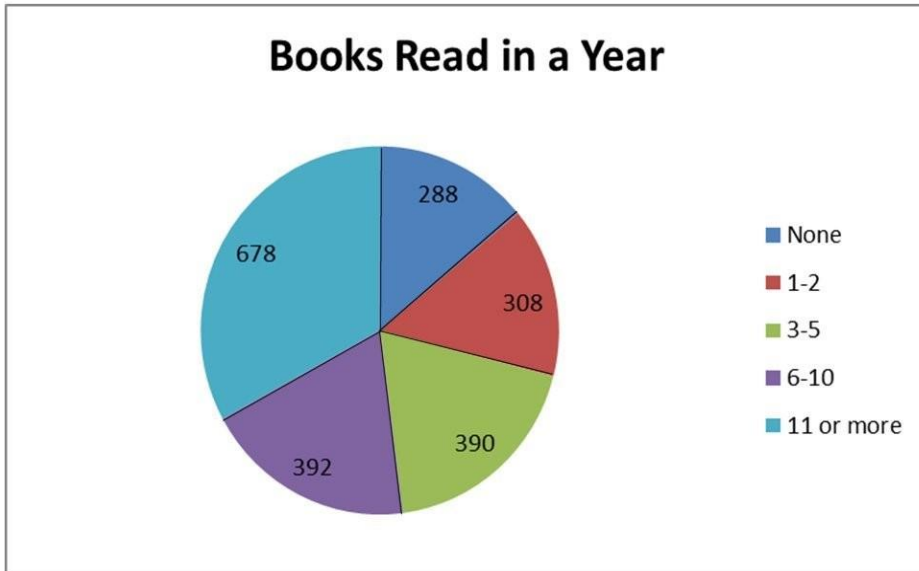
Reference: Page 51

134) A survey of 2,056 adults was asked how many books they typically read in a year. The following table shows the frequency distribution of the respondents.

| Response | Frequency |
|------------|-----------|
| None | 288 |
| 1-2 | 308 |
| 3-5 | 390 |
| 6-10 | 392 |
| 11 or more | 678 |

Construct a chart that best displays this data.

Answer:



Diff: 2

Keywords: pie charts

Reference: Page 51

135) Costco is a warehouse store that has two types of membership — standard and executive. The following table shows the gender and type of membership of the last 20 customers at a particular store.

| | | | |
|------------|--------|------------|--------|
| Membership | Gender | Membership | Gender |
| standard | male | standard | female |
| executive | female | standard | male |
| standard | female | standard | female |
| executive | male | standard | male |
| standard | male | standard | female |
| executive | male | executive | female |
| standard | male | executive | female |
| executive | female | executive | male |
| standard | male | executive | female |
| executive | female | executive | female |

Construct a contingency table for this data.

Answer:

| | | |
|--------|----------|-----------|
| | Standard | Executive |
| Female | 4 | 7 |
| Male | 6 | 3 |

Diff: 1

Keywords: contingency tables

Reference: Page 56

136) Chris is a photographer and sells two types of photography for consignment in an art store — landscapes and flower close-ups. She also sells each in three print sizes — 8x10, 11x14, and 13x19 inches. The following table shows the number of prints of each type and size that have recently sold.

| Type | Size | Type | Size |
|-----------|-------|-----------|-------|
| landscape | 13x19 | flower | 11x14 |
| landscape | 11x14 | landscape | 11x14 |
| flower | 11x14 | landscape | 8x10 |
| flower | 8x10 | flower | 8x10 |
| landscape | 13x19 | landscape | 11x14 |
| flower | 8x10 | landscape | 13x19 |
| flower | 11x14 | flower | 11x14 |
| flower | 13x19 | landscape | 11x14 |
| landscape | 13x19 | landscape | 13x19 |

Construct a contingency table for this data.

Answer:

| | Landscape | Flower |
|-------|-----------|--------|
| 8x10 | 1 | 3 |
| 11x14 | 4 | 4 |
| 13x19 | 5 | 1 |

Diff: 1

Keywords: contingency tables

Reference: Page 56

137) The following data represents the high ambient temperature for a particular city over the past 16 days.

52 56 56 58 59 60 62 65
 69 73 73 74 76 76 77 78

Construct a stem and leaf display for this data.

Answer: 5 | 2 6 6 8 9

6 | 0 2 5 9

7 | 3 3 4 6 6 7 8

Diff: 1

Keywords: stem and leaf display

Reference: Page 60

138) The following data represents the satisfaction scores from customers at a hotel on a 1-100 scale.

77 77 81 81 82 83 83 84 84 87
 87 89 90 92 92 92 93 93 96 97

Construct a stem and leaf display for this data, splitting the stems in half.

Answer: 7(5) | 7 7

8(0) | 1 1 2 3 3 4 4

8(5) | 7 7 9

9(0) | 0 2 2 2 3 3

9(5) | 6 7

Diff: 1

Keywords: stem and leaf display

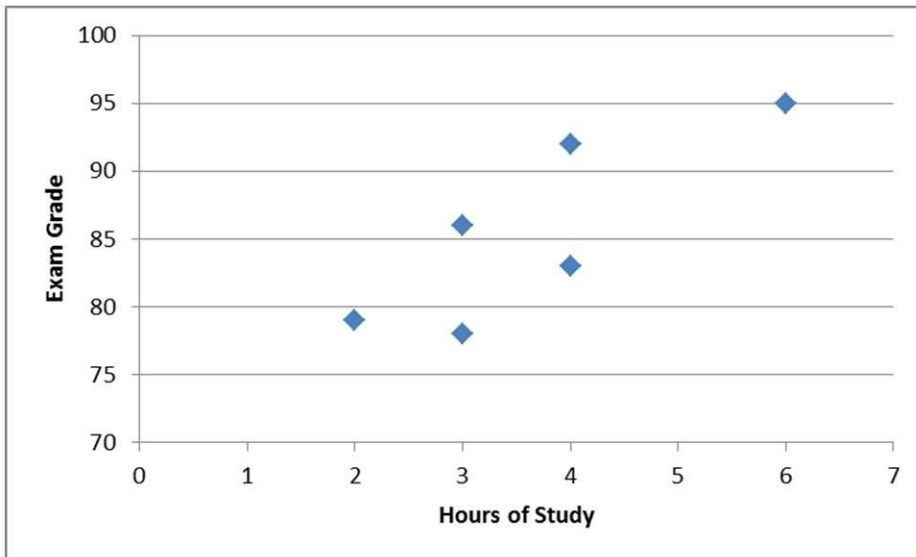
Reference: Page 60

139) The following table shows the number of hours that six students studied for their statistics exam and their corresponding exam grades.

| Hours of Study | Exam Grade |
|----------------|------------|
| 3 | 86 |
| 6 | 95 |
| 4 | 92 |
| 4 | 83 |
| 3 | 78 |
| 2 | 79 |

Construct a scatter plot to display this data. What conclusions can be drawn?

Answer:



It appears that the students who studied longer, in general, did better on the exam.

Diff: 1

Keywords: scatter plots

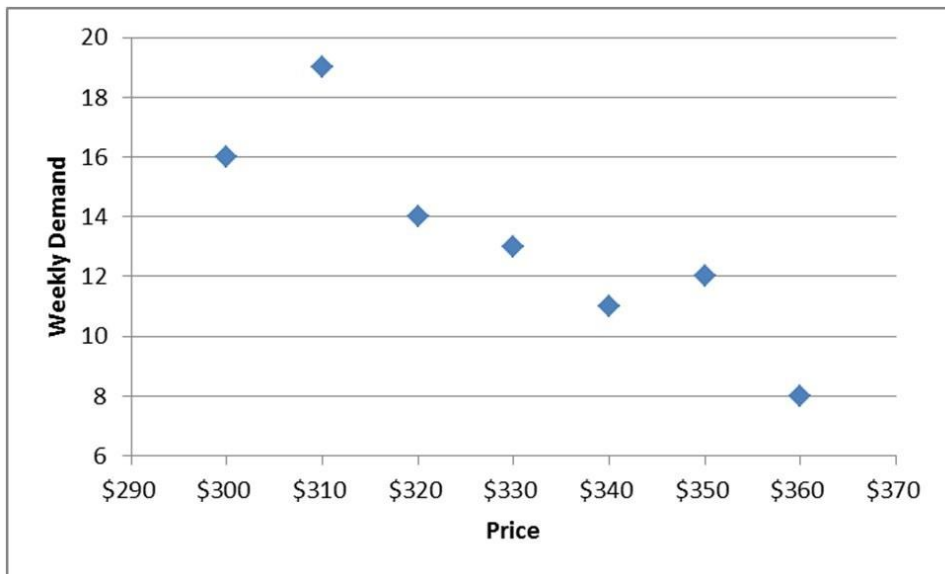
Reference: Page 62

140) The following table shows the weekly demand for a particular digital camera and the corresponding price of that camera during the week.

| Weekly Demand | Price |
|---------------|-------|
| 16 | \$300 |
| 19 | \$310 |
| 14 | \$320 |
| 13 | \$330 |
| 11 | \$340 |
| 12 | \$350 |
| 8 | \$360 |

Construct a scatter plot to display this data. What conclusions can be drawn?

Answer:



It appears that as the price increases, demand for the camera decreases.

Diff: 1

Keywords: scatter plots

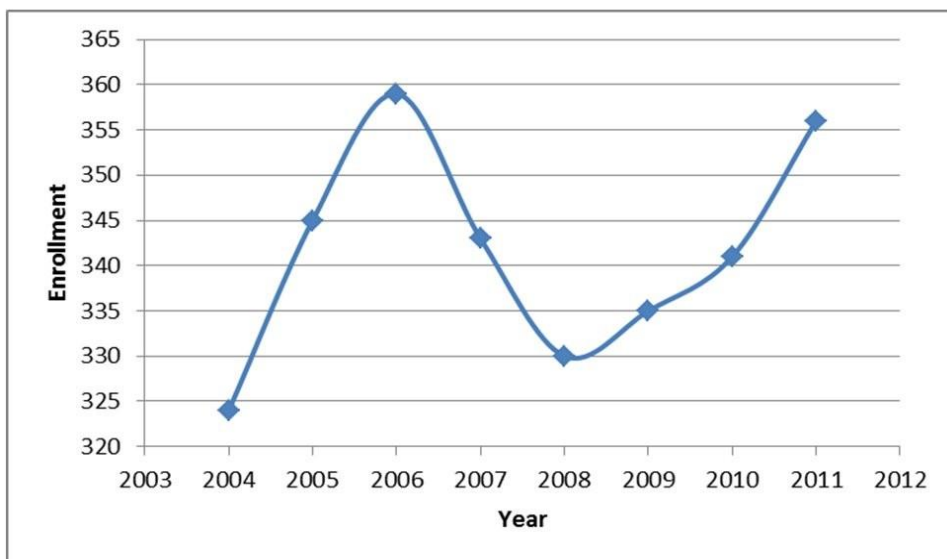
Reference: Page 62

141) The following table shows the enrollment at a private grade school from 2004 until 2011.

| Year | Enrollment |
|------|------------|
| 2004 | 324 |
| 2005 | 345 |
| 2006 | 359 |
| 2007 | 343 |
| 2008 | 330 |
| 2009 | 335 |
| 2010 | 341 |
| 2011 | 356 |

Construct a line chart to display this data.

Answer:



Diff: 1

Keywords: line chart

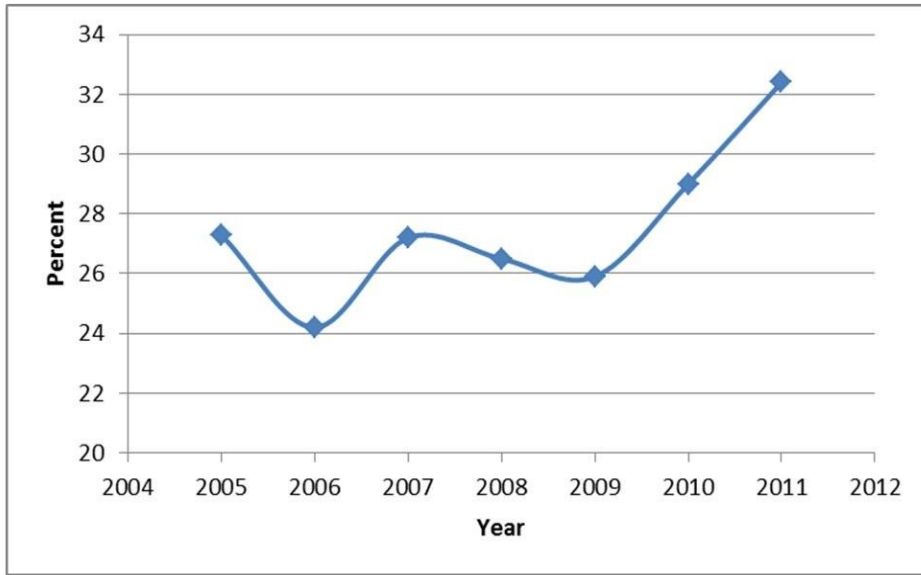
Reference: Page 64

142) The following table shows the percent of car sales that were SUVs from 2005 until 2011.

| Year | Percent |
|------|---------|
| 2005 | 27.3 |
| 2006 | 24.2 |
| 2007 | 27.2 |
| 2008 | 26.5 |
| 2009 | 25.9 |
| 2010 | 29.0 |
| 2011 | 32.4 |

Construct a line chart to display this data.

Answer:



Diff: 1

Keywords: line chart

Reference: Page 64