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
Objective: 2.2.1

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
Objective: 2.2.1

3) Continuous data is often the result of measuring observations rather than counting them.
Answer: TRUE
Diff: 1
Keywords: continuous data
Objective: 2.2.1

4) Discrete data can have an infinite number of values within a specific interval.
Answer: FALSE
Diff: 2
Keywords: discrete data
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

20) Histograms displaying continuous data have gaps between their bars.
Answer: FALSE
Diff: 1
Keywords: histograms, continuous data
Objective: 2.2.2

21) Histograms displaying discrete data usually have gaps between their bars.
Answer: TRUE
Diff: 1
Keywords: histograms, continuous data
Objective: 2.2.2

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
Objective: 2.2.2

23) The ogive is a line graph that plots the cumulative relative frequency distribution.
Answer: TRUE
Diff: 1
Keywords: ogive
Objective: 2.2.2

24) Quantitative data are values that are categorical, describing a characteristic such as gender or level of education.
Answer: FALSE
Diff: 1
Keywords: qualitative data
Objective: 2.3.1

25) A histogram is the appropriate type of graph to display both quantitative and qualitative data.
Answer: FALSE
Diff: 1
Keywords: qualitative data
Objective: 2.3.1

26) Bar charts can display data either horizontally or vertically.
Answer: TRUE
Diff: 1
Keywords: bar charts
Objective: 2.3.1

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 2018 when compared to 2019.
Answer: TRUE
Diff: 1
Keywords: clustered bar charts
Objective: 2.3.1

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
Objective: 2.3.1

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
Objective: 2.3.1

30) Pareto charts display the categories in an increasing order with the least problematic categories shown first.
Answer: FALSE
Diff: 2
Keywords: Pareto charts
Objective: 2.3.1

31) Pie charts are an excellent tool for comparing proportions for qualitative (categorical) data.
Answer: TRUE
Diff: 1
Keywords: pie charts
Objective: 2.3.1

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
Objective: 2.3.1

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
Objective: 2.3.1

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
Objective: 2.3.1

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
Objective: 2.3.1

36) Contingency tables help us identify relationships between two or more variables.
Answer: TRUE
Diff: 1
Keywords: contingency tables
Objective: 2.4.1

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
Objective: 2.5.1

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
Objective: 2.5.1

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
Objective: 2.6.1

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
Objective: 2.6.1

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
Objective: 2.6.1

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
Objective: 2.6.1

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
Objective: 2.6.1

44) A _____ is a table that shows the number of data observations that fall into specific intervals.
A) histogram
B) frequency distribution
C) ogive
D) Pareto chart
Answer: B
Diff: 1
Keywords: frequency distribution
Objective: 2.EOC.1

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
Objective: 2.2.1

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
Objective: 2.2.1

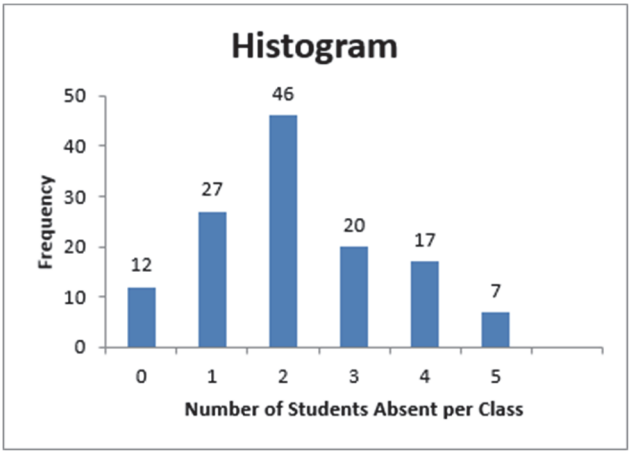
47) A(n) _____ is a category in a frequency distribution.
A) line chart
B) ogive
C) class
D) histogram
Answer: C
Diff: 1
Keywords: class
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

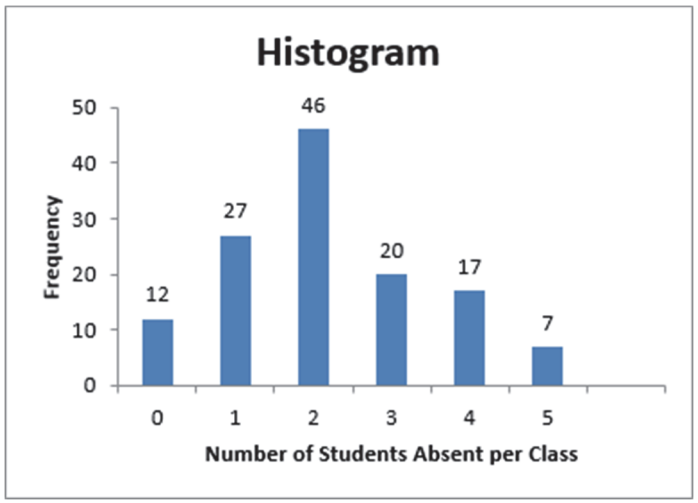
50) A _____ is a graph showing the number of observations in each class of a frequency distribution.
A) frequency distribution
B) ogive
C) relative frequency distribution
D) histogram
Answer: D
Diff: 1
Keywords: histogram
Objective: 2.2.2

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 classes do these data represent?
A) 46
B) 100
C) 129
D) 150
Answer: C
Diff: 2
Keywords: histogram
Objective: 2.2.2

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 two or fewer students absent?
A) 9
B) 40
C) 42
D) 85
Answer: D
Diff: 2
Keywords: histogram
Objective: 2.2.2

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

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 $2^k \geq n$ rule is
A) 5.
B) 6.
C) 7.
D) 8.
Answer: B
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

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
Objective: 2.2.1

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
Objective: 2.2.1

63) The following frequency distribution displays the daily sales of muffins at Avalon Bakery.

Number Sold	**Frequency**
1-7	5
8-14	8
15-21	13
20-28	21
27-35	3

What is the width of each class in this distribution?
A) 1
B) 7
C) 10
D) 35
Answer: B
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.EOC.1

64) The following frequency distribution displays the daily sales of muffins at Avalon Bakery.

Number Sold	Frequency
1-7	5
8-14	8
15-21	13
20-28	21
27-35	3

How many days 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
Objective: 2.2.1

65) The following frequency distribution displays the daily sales of muffins at Avalon Bakery.

Number Sold	Frequency
1-7	5
8-14	8
15-21	13
20-28	21
27-35	3

What is the probability that between 15 to 21 muffins will be sold tomorrow?
A) 0.26
B) 0.36
C) 0.44
D) 0.50
Answer: A
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

66) The following frequency distribution displays the daily sales of muffins at Avalon Bakery.

Number Sold	Frequency
1-7	5
8-14	8
15-21	13
20-28	21
27-35	3

What is the probability that 21 or fewer muffins will be sold tomorrow?
A) 0.52
B) 0.66
C) 0.80
D) 0.92
Answer: A
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

67) The following frequency distribution displays the daily sales of muffins at Avalon Bakery.

Number Sold	Frequency
1-7	5
8-14	8
15-21	13
20-28	21
27-35	3

What is the probability that between 20 and 35 muffins will be sold tomorrow?
A) 0.14
B) 0.48
C) 0.58
D) 0.66
Answer: B
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

68) The following distribution shows the frequency of daily revenue for an Italian restaurant in Wilmington, Delaware.

Revenue	Frequency
Under $2,000	18
$2,000 to under $4,000	10
$4,000 to under $6,000	26
$6,000 to under $8,000	14
$8,000 to under $10,000	8
Over $10,000	4

What is the width of each class for this distribution?
A) $10,000
B) $8,000
C) $5,000
D) $2,000
Answer: D
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

69) The following distribution shows the frequency of daily revenue for an Italian restaurant in Wilmington, Delaware.

Revenue	Frequency
Under $2,000	18
$2,000 to under $4,000	10
$4,000 to under $6,000	26
$6,000 to under $8,000	14
$8,000 to under $10,000	8
Over $10,000	4

How many business days does this frequency distribution represent?
A) 100
B) 80
C) 32
D) 18
Answer: B
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

70) The following distribution shows the frequency of daily revenue for an Italian restaurant in Wilmington, Delaware.

Revenue	Frequency
Under $2,000	18
$2,000 to under $4,000	10
$4,000 to under $6,000	26
$6,000 to under $8,000	14
$8,000 to under $10,000	8
Over $10,000	4

What is the probability that a randomly selected day will generate between $2,000 and under $4,000 in revenue?
A) 0.100
B) 0.125
C) 0.325
D) 0.500
Answer: B
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

71) The following distribution shows the frequency of daily revenue for an Italian restaurant in Wilmington, Delaware.

Revenue	Frequency
Under $2,000	18
$2,000 to under $4,000	10
$4,000 to under $6,000	26
$6,000 to under $8,000	14
$8,000 to under $10,000	8
Over $10,000	4

What is the probability that a randomly selected day will generate under $2,000 in revenue?
A) 0.050
B) 0.160
C) 0.225
D) 0.500
Answer: C
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

72) The following distribution shows the frequency of daily revenue for an Italian restaurant in Wilmington, Delaware.

Revenue	Frequency
Under $2,000	18
$2,000 to under $4,000	10
$4,000 to under $6,000	26
$6,000 to under $8,000	14
$8,000 to under $10,000	8
Over $10,000	4

What is the probability that a randomly selected day will generate more than $6,000 in revenue?
A) 0.325
B) 0.650
C) 0.775
D) 0.900
Answer: A
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.1

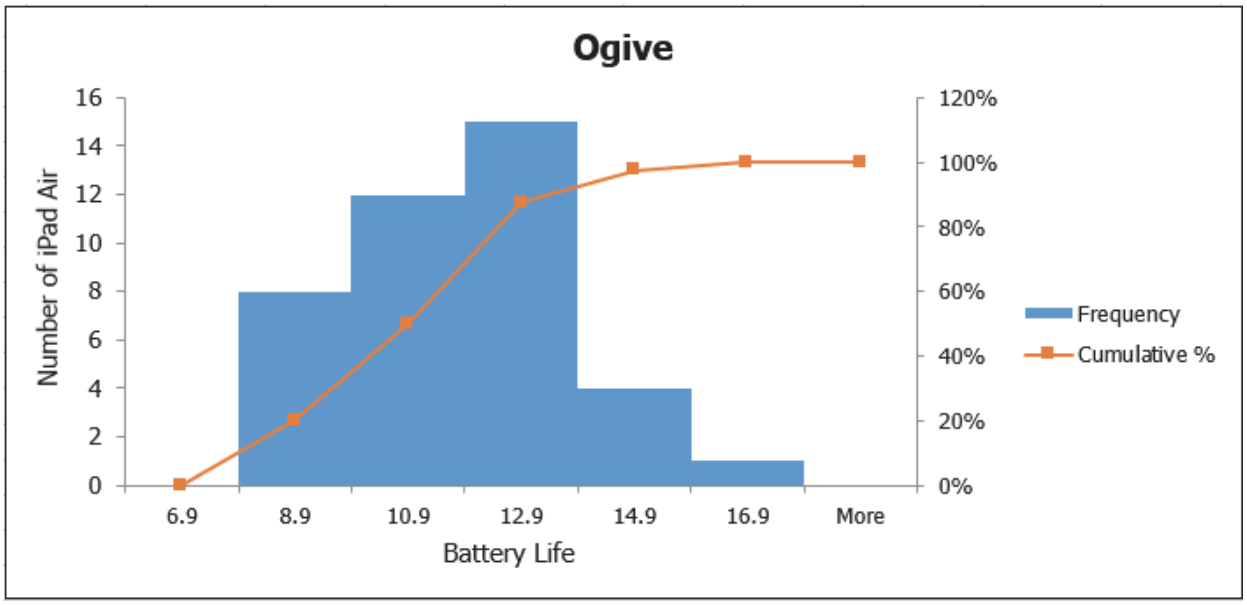
73) Bins in Excel represent the _____.
A) lower boundary of each class in a frequency distribution
B) upper boundary of each class in a frequency distribution
C) width of each class in a frequency distribution
D) number of classes in a frequency distribution
Answer: B
Diff: 1
Keywords: frequency distribution, grouped data, bins
Objective: 2.2.1

74) When you want to represent a cumulative distribution with a graph, a _____ is your best choice.
A) frequency distribution
B) histogram
C) ogive
D) relative frequency distribution
Answer: C
Diff: 1
Keywords: ogive
Objective: 2.2.2

75) The _____ graphs the midpoint of each class or bin as a line rather than a column.
A) bar chart
B) histogram
C) scatter plot
D) ogive
Answer: D
Diff: 1
Keywords: ogive
Objective: 2.2.2

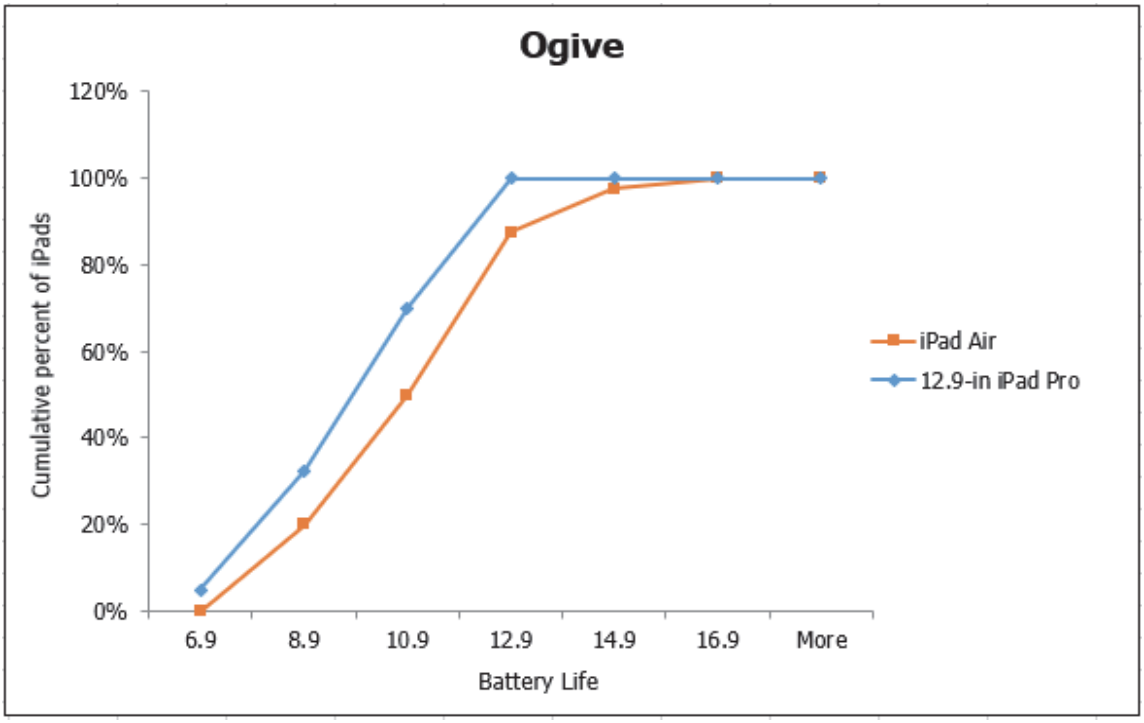
76) The_____ is a line graph that plots the cumulative relative frequency distribution.
A) ogive
B) histogram
C) scatter plot
D) pie chart
Answer: A
Diff: 1
Keywords: ogive
Objective: 2.2.2

77) The following histogram and ogive show the battery life, in hours, for a sample of iPad Air batteries. Based on this graph, which of the following statements is true?



A) Approximately 20% of the iPad Air batteries lasted less than 12.9 hours.
B) Approximately 100% of the iPad Air batteries lasted 0.9 hours or less.
C) Approximately 80% of the iPad Air batteries lasted 12.9 hours or less.
D) Approximately 90% of the iPad Air batteries lasted more than 10.9 hours.
Answer: C
Diff: 2
Keywords: ogive
Objective: 2.2.2

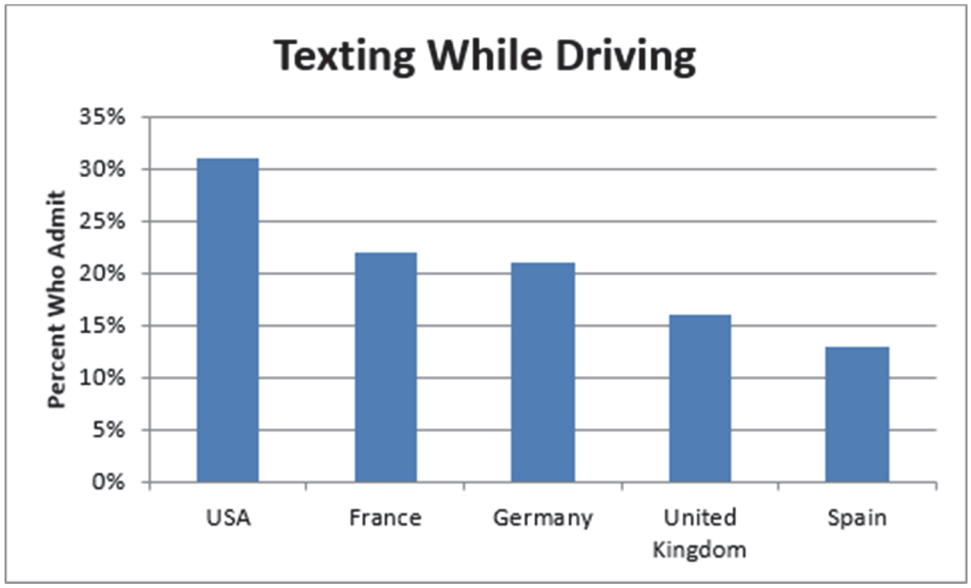
78) The following ogives show the battery life, in hours, for a sample of iPad Air and 12.9-in iPad Pro batteries. The square markers represent the iPad Air battery life while the diamond markers represent the 12.9-in iPad Pro battery life. Based on this graph, which of the following statements is true?



A) The battery life of the 12.9-in iPad Pro tends to be slightly longer than the battery life of the iPad Air.
B) The battery life of the 12.9-in iPad Pro tends to be the same as the battery life of the iPad Air.
C) The difference in battery life between the iPad Air and 12.9-in iPad Pro cannot be detected with this graph.
D) The battery life of the iPad Air tends to be slightly longer than the battery life of the 12.9-in iPad Pro.

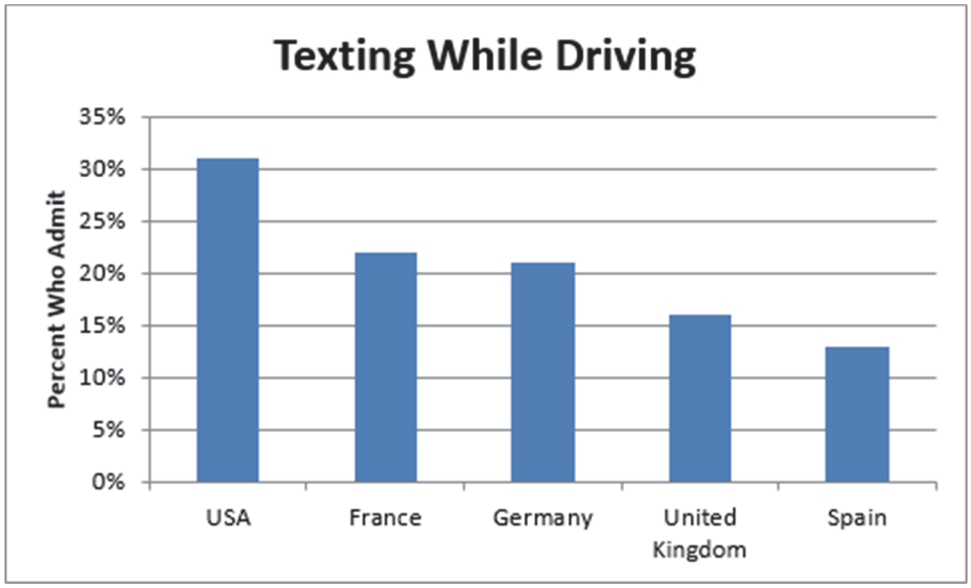
Answer: D
Diff: 2
Keywords: ogive
Objective: 2.2.2

79) The following chart shows the percentage of adults from various countries who admitted to texting while driving in a recent survey.



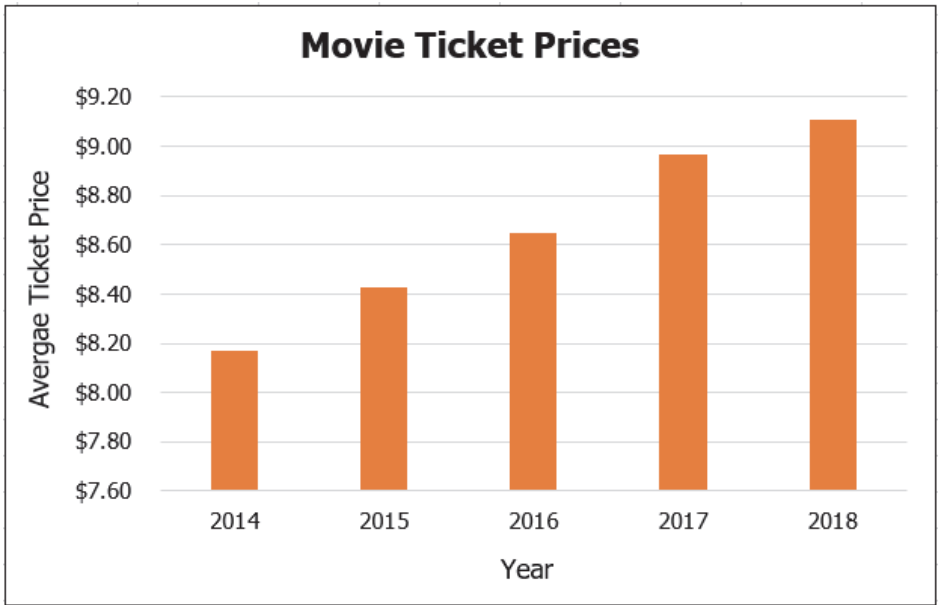
This chart is an example of a _____ bar chart.
A) horizontal
B) stacked
C) clustered
D) vertical
Answer: D
Diff: 1
Keywords: vertical bar charts
Objective: 2.3.1

80) The following chart shows the percentage of adults from various countries who admitted to texting while driving in a recent survey.



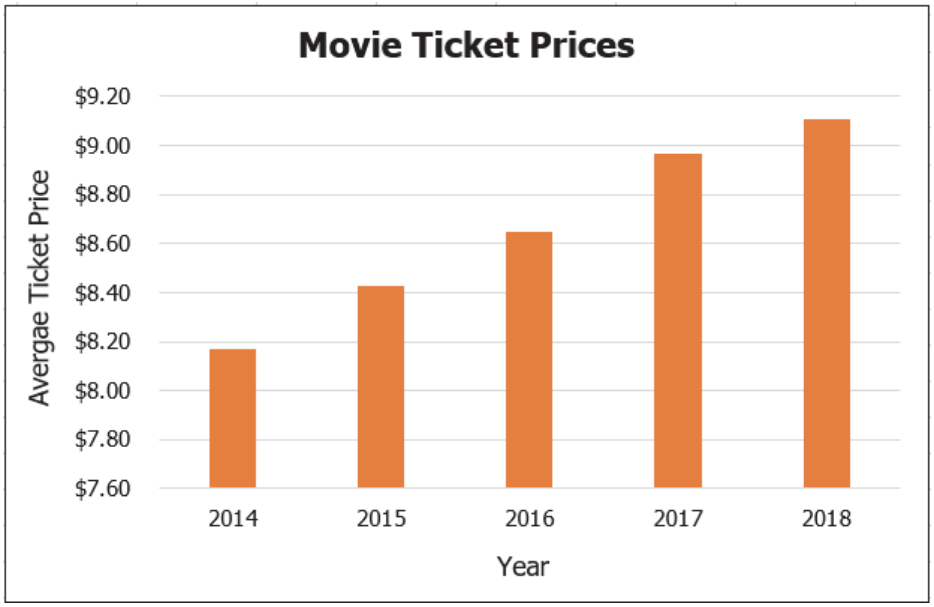
Which of the following statements is **not** correct?
A) The United States has the highest percentage of adults who admitted to texting while driving.
B) The United Kingdom has a higher percentage of adults who admit to texting while driving when compared to Germany.
C) Spain has the lowest percentage of adults who admitted to texting while driving.
D) The United Kingdom has a lower percentage of adults who admit to texting while driving when compared to France.
Answer: B
Diff: 1
Keywords: vertical bar charts
Objective: 2.3.1

81) The following chart shows the average movie ticket price according to a survey by the National Association of Theater Owners.



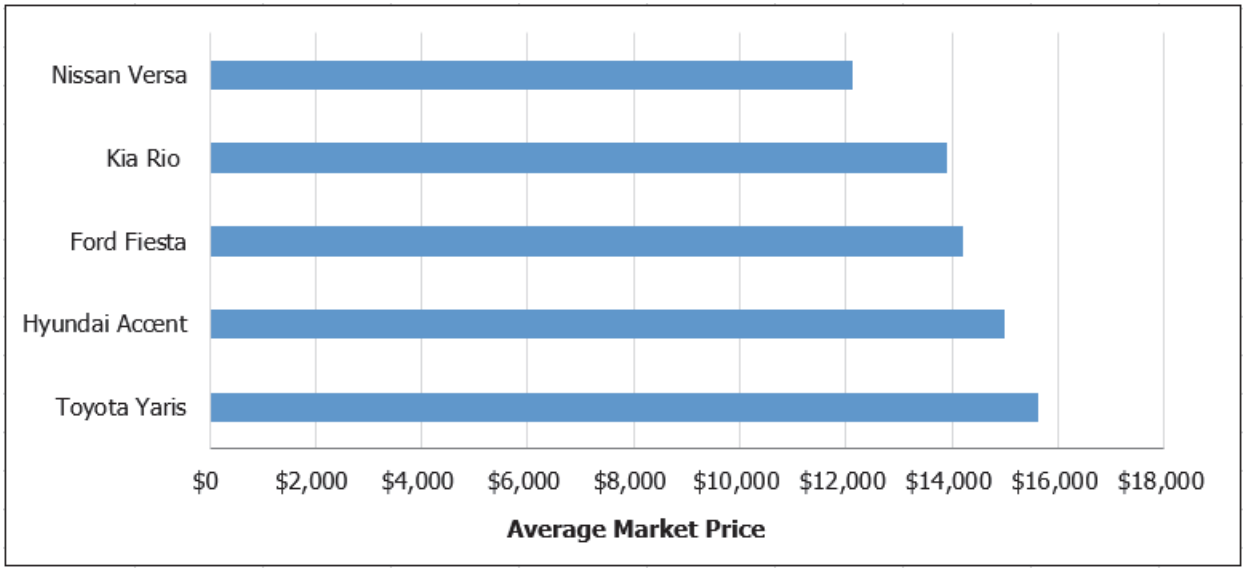
This chart is an example of a _____ chart.
A) horizontal bar
B) vertical bar
C) stacked bar
D) Pareto
Answer: B
Diff: 1
Keywords: vertical bar charts
Objective: 2.3.1

82) The following chart shows the average movie ticket price according to a survey by the National Association of Theater Owners.



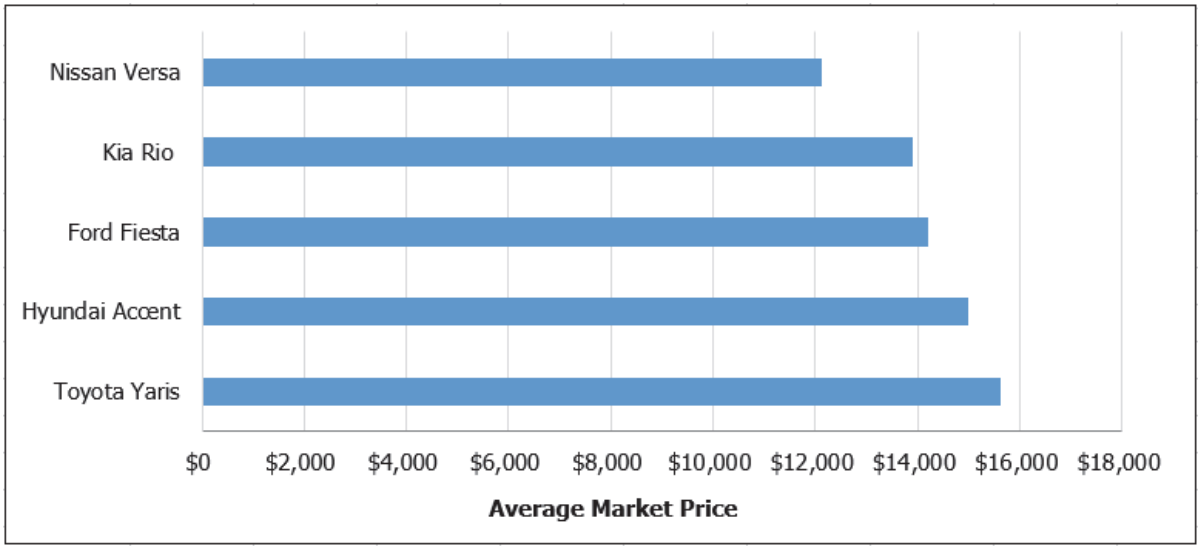
Which of the following statements is **not** correct?
A) The average ticket price has decreased over time.
B) The lowest average ticket price occurred in 2014.
C) The highest average ticket price occurred in 2018.
D) The average ticket price in 2018 was higher than the average ticket price in 2016.
Answer: A
Diff: 1
Keywords: vertical bar charts
Objective: 2.3.1

83) The following chart shows the average market price for five brands of cars in April 2019.



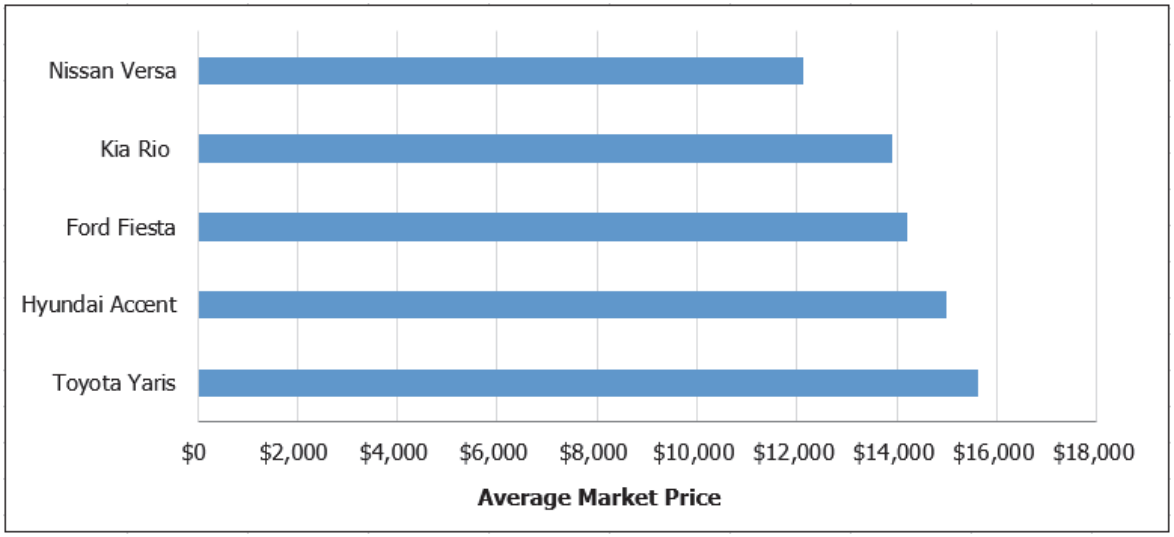
This chart is an example of a _____ bar chart.
A) horizontal
B) stacked
C) clustered
D) vertical
Answer: A
Diff: 1
Keywords: horizontal bar charts
Objective: 2.3.1

84) The following chart shows the average market price for five brands of cars in April 2019.



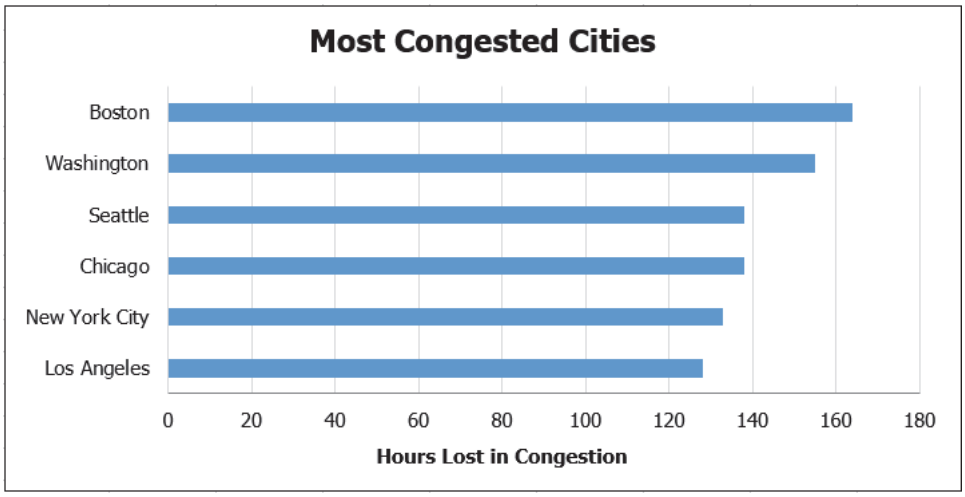
Which of the following statements is **not** correct?
A) The Nissan Versa has the lowest average market value.
B) The Kia Rio has a lower average market price than the Ford Fiesta.
C) The Hyundai Accent has a lower average market price than the Toyota Yaris.
D) The Hyundai Accent has a lower average market price than the Nissan Versa.
Answer: D
Diff: 1
Keywords: horizontal bar charts
Objective: 2.3.1

85) The following chart shows the average market price for five brands of cars in April 2019.



This chart is an example of a _____ chart.
A) stacked bar
B) horizontal bar
C) Pareto
D) vertical bar
Answer: B
Diff: 1
Keywords: horizontal bar charts
Objective: 2.3.1

86) The following chart shows the hours lost in congestion (hours commuters spent in traffic delays) as reported by 2018 Impact Rank at the six most congested cities in the U.S.



Which of the following statements is **not** correct?
A) Chicago commuters have the highest number of hours lost in congestion.
B) Los Angeles commuters have the lowest number of hours lost in congestion.
C) Washington commuters have a higher number of hours lost in congestion when compared to New York commuters.
D) Seattle commuters have a lower number of hours lost in congestion when compared to Boston commuters.
Answer: A
Diff: 1
Keywords: vertical bar charts
Objective: 2.EOC.2

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
Objective: 2.3.1

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
Objective: 2.3.1

89) _____ charts are a specific type of bar chart used in quality control programs by businesses to graphically display the causes of problems.
A) Stacked bar
B) Clustered bar
C) Pie
D) Pareto
Answer: D
Diff: 1
Keywords: Pareto charts
Objective: 2.3.1

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
Objective: 2.3.1

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
Objective: 2.EOC.2

92) The following table shows the percentage of emails 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
Objective: 2.3.1

93) The following table shows the percentage of a country's energy consumption according to various sources.

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
Objective: 2.EOC.3

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
Objective: 2.3.1

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
Objective: 2.4.1

96) A car dealership sells Buicks and Hondas. The following data shows the number of buyers last month according to the brand of car they purchased as well as their age group.

Age	**Buick**	**Honda**
Under 40 years old	6	17
40 years or older	19	8

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
Objective: 2.4.1

97) A car dealership sells Buicks and Hondas. The following data shows the number of buyers last month according to the brand of car they purchased as well as their age group.

Age	**Buick**	**Honda**
Under 40 years old	6	17
40 years or older	19	8

The percentage of buyers 40 years or older and purchased a Honda is _____.
A) 12%
B) 16%
C) 34%
D) 38%
Answer: B
Diff: 1
Keywords: contingency tables
Objective: 2.4.1

98) A car dealership sells Buicks and Hondas. The following data shows the number of buyers last month according to the brand of car they purchased as well as their age group.

Age	**Buick**	**Honda**
Under 40 years old	6	17
40 years or older	19	8

The percentage of buyers who are under 40 years old is _____.
A) 20%
B) 46%
C) 50%
D) 54%
Answer: B
Diff: 2
Keywords: contingency tables
Objective: 2.4.1

99) A car dealership sells Buicks and Hondas. The following data shows the number of buyers last month according to the brand of car they purchased as well as their age group.

Age	**Buick**	**Honda**
Under 40 years old	6	17
40 years or older	19	8

Which one of the following statements is true based on the data?
A) There are more Buick buyers than Honda buyers.
B) Honda buyers tend to be older than Buick buyers.

C) There are fewer Buick buyers than Honda buyers.
D) Buick buyers tend to be older than Honda buyers.
Answer: D
Diff: 2
Keywords: contingency tables
Objective: 2.4.1

100) 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
Objective: 2.5.1

101) 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
Objective: 2.5.1

102) 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
Objective: 2.5.1

103) 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
Objective: 2.5.1

104) Consider the following stem and leaf display.

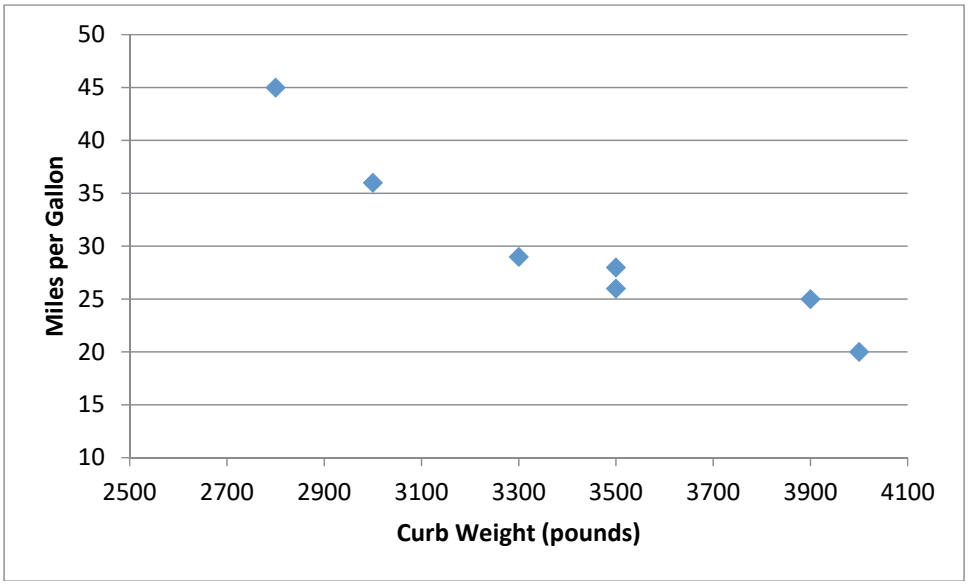
1(0) | 2 4 4
1(5) | 6 6 7 8
2(0) | 0 0 1 1 1 2 2
2(5) | 5 5 7 8
3(0) | 0 1 3 4

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
Objective: 2.5.1

105) _____ provide a picture of the relationship between two variables that are paired together.
A) Scatter plots
B) Pareto charts
C) Histograms
D) Pie charts
Answer: A
Diff: 1
Keywords: scatter plots
Objective: 2.6.2

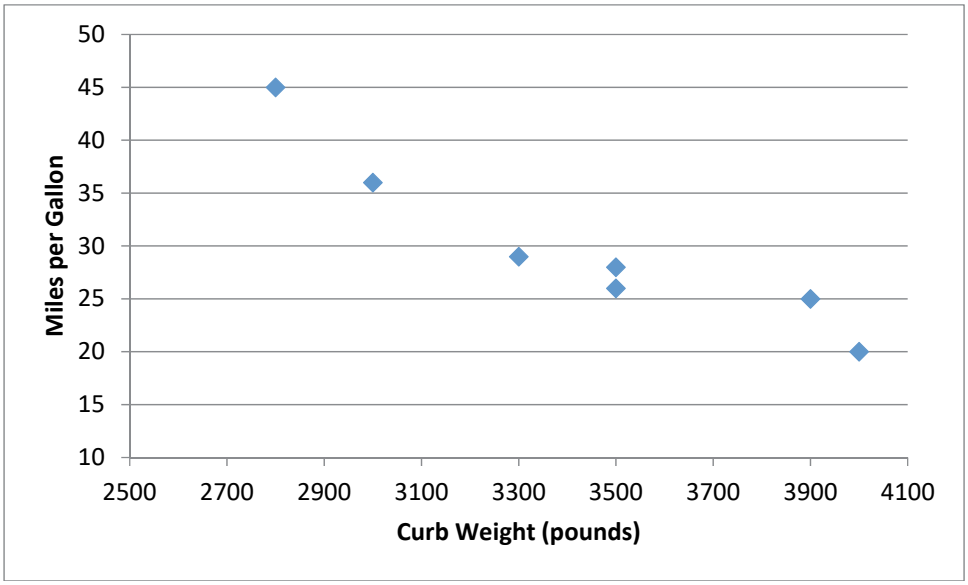
106) A _____ chart is a special type of scatter plot in which the data points in the scatter plot are connected with a line.
A) bar
B) Pareto
C) line
D) pie
Answer: C
Diff: 1
Keywords: scatter plot, line chart
Objective: 2.6.2

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



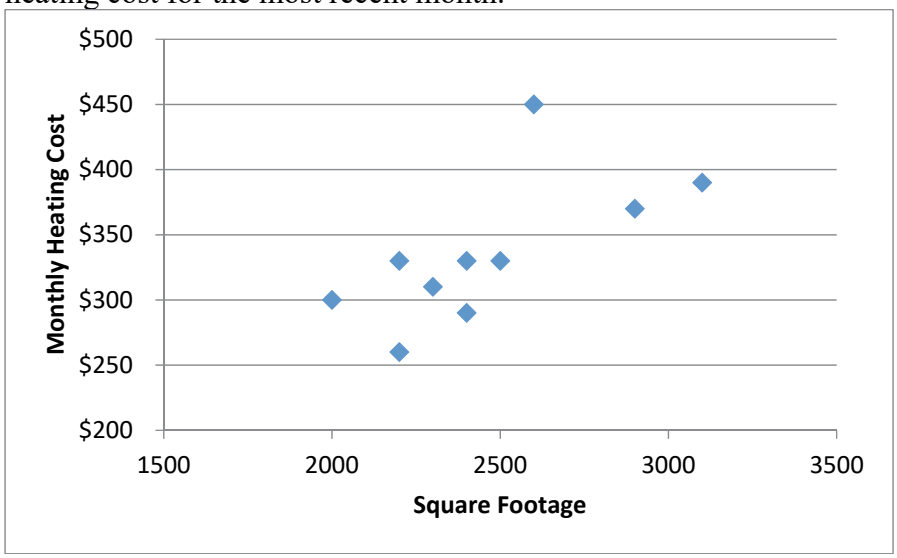
This graph is an example of a _____.
A) line chart
B) scatter plot
C) Pareto chart
D) histogram
Answer: B
Diff: 1
Keywords: scatter plots
Objective: 2.6.2

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



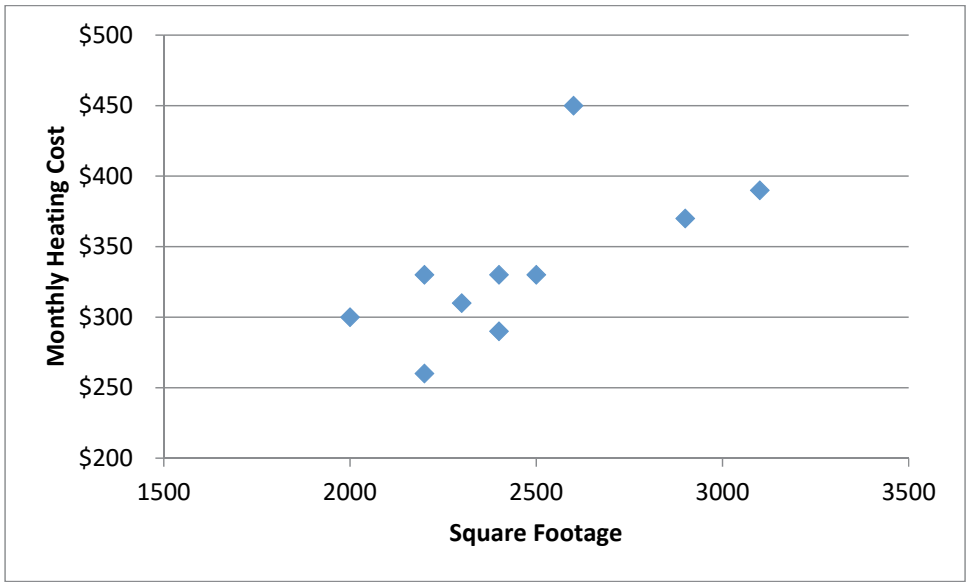
Which one of the following statements is correct?
A) Curb weight is the dependent variable in the graph.
B) Miles per gallon is the independent variable in the graph.
C) As the curb weight increases, the highway miles per gallon tend to decrease.
D) As the curb weight increases, the highway miles per gallon tend to increase.
Answer: C
Diff: 1
Keywords: scatter plots
Objective: 2.6.2

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



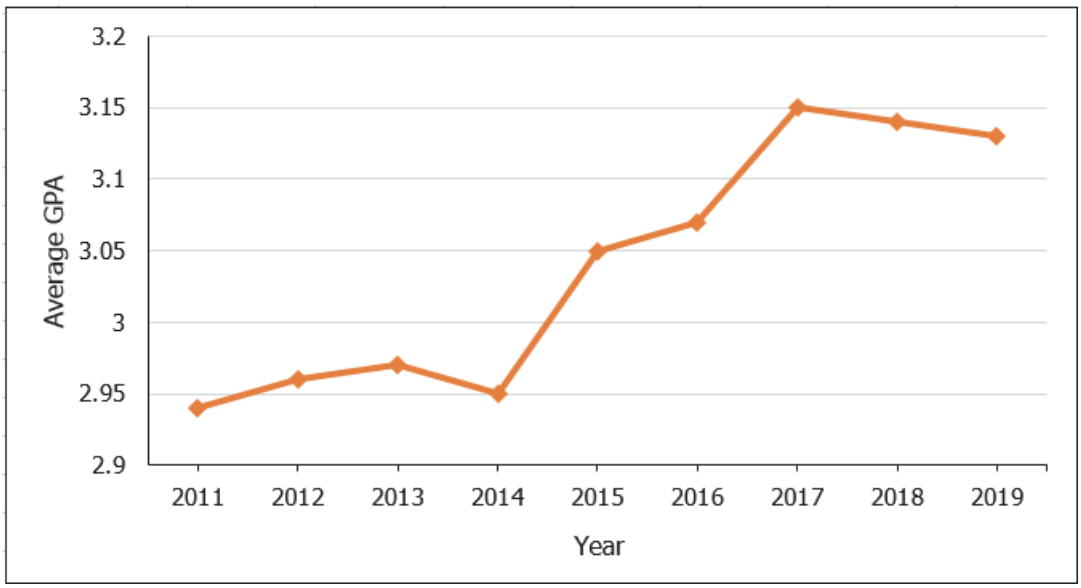
This graph is an example of a _____.
A) line chart
B) horizontal bar chart
C) Pareto chart
D) scatter plot
Answer: D
Diff: 1
Keywords: scatter plots
Objective: 2.6.2

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



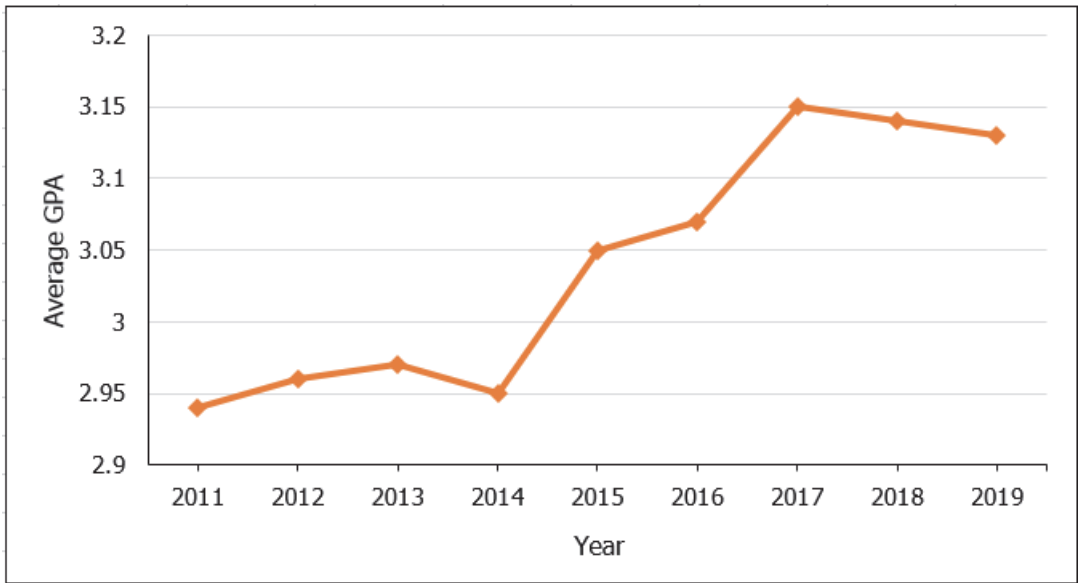
Which one of the following statements is **not** correct?
A) Monthly heating cost is the dependent variable in the graph.
B) Square footage is the independent variable in the graph.
C) As the square footage of the home increases, the monthly heating cost tends to increase.
D) As the square footage of the home increases, the monthly heating cost tends to decrease.
Answer: D
Diff: 1
Keywords: scatter plots
Objective: 2.6.2

111) The following graph shows the average grade point average for a particular college from 2011 until 2019.



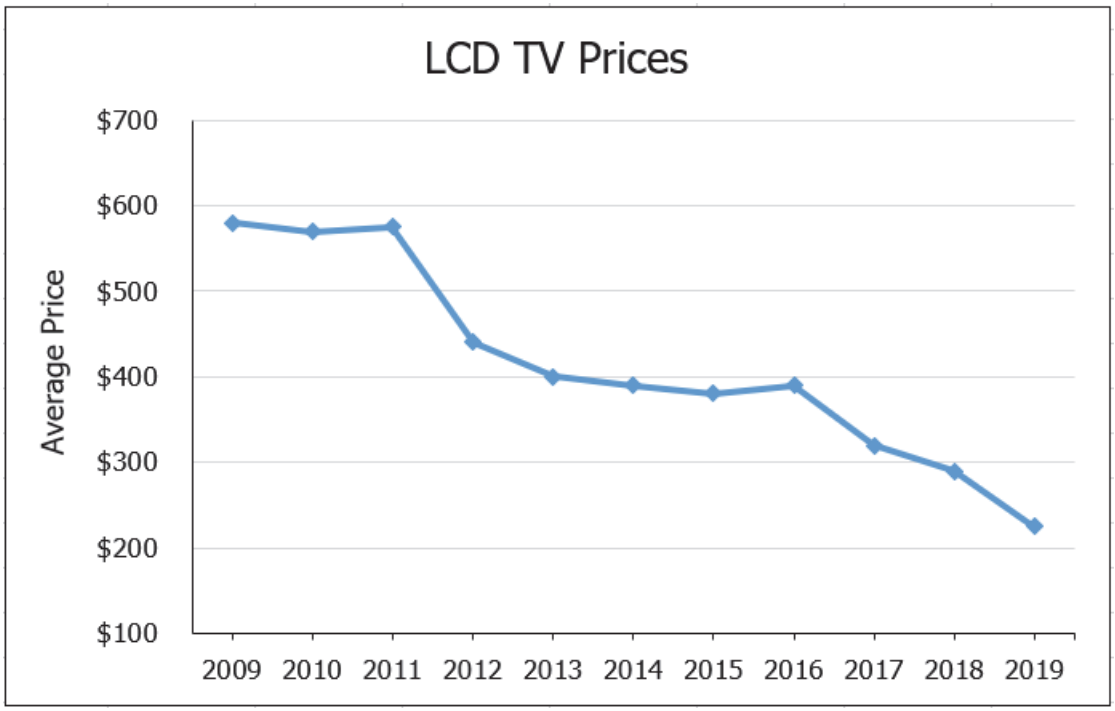
This graph is an example of a _____.
A) line chart
B) vertical bar chart
C) Pareto chart
D) histogram
Answer: A
Diff: 1
Keywords: line chart
Objective: 2.6.2

112) The following graph shows the average grade point average for a particular college from 2011 until 2019.



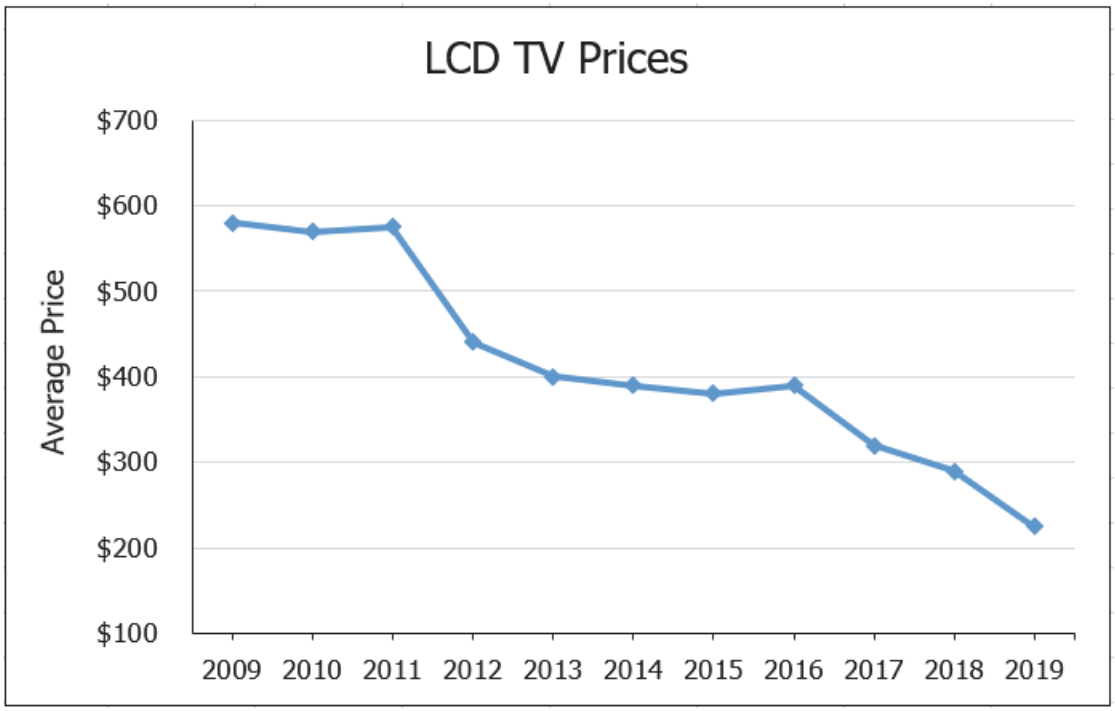
Which one of the following statements is correct?
A) Average GPA is the dependent variable in the graph.
B) Year is the dependent variable in the graph.
C) Historically, the Average GPA of the college tends to decrease.
D) There appears to be no relationship between Year and Average GPA.
Answer: A
Diff: 1
Keywords: line chart
Objective: 2.6.2

113) The following graph shows the average price of LCD TVs from 2009 until 2019.



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
Objective: 2.6.2

114) The following graph shows the average price of LCD TVs from 2009 until 2019.



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
Objective: 2.6.2

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

Construct a frequency distribution for this data.
Answer:

Number of Students	Frequency
0	18
1	10
2	6
3	4
4	2
Total	40

Diff: 1
Keywords: frequency distribution
Objective: 2.2.1

116) 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
0	0	0	0	0	0	0	0	1	1
1	1	1	1	1	1	1	1	2	2
2	2	2	2	3	3	3	3	4	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	18	0.45
1	10	0.25
2	6	0.15
3	4	0.10
4	2	0.05
Total	40	1.00

$P(x = 1) = 0.25$
Diff: 1
Keywords: relative frequency distributions
Objective: 2.2.1

117) 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
0	0	0	0	0	0	0	0	1	1
1	1	1	1	1	1	1	1	2	2
2	2	2	2	3	3	3	3	4	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	18	0.45	0.45
1	10	0.25	0.70
2	6	0.15	0.85
3	4	0.10	0.95
4	2	0.05	1.00
Total	40	1.00	

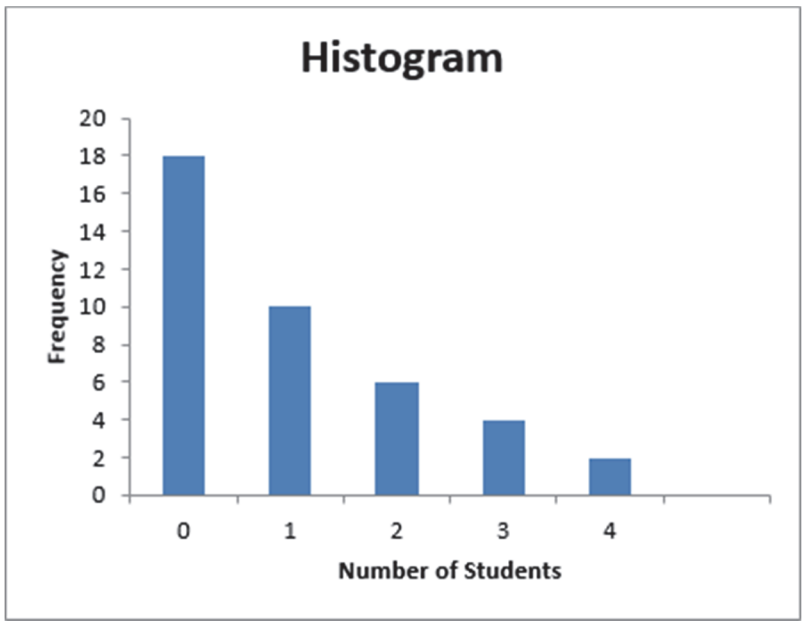
$P(x < 3) = 0.85$
Diff: 1
Keywords: cumulative relative frequency distributions
Objective: 2.2.1

118) 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
0	0	0	0	0	0	0	0	1	1
1	1	1	1	1	1	1	1	2	2
2	2	2	2	3	3	3	3	4	4

Construct a histogram for this data.
Answer:

Number of Students (Bin)	**Frequency**
0	18
1	10
2	6
3	4
4	2
Total	40



Diff: 1
Keywords: frequency distribution
Objective: 2.2.2

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 frequency distribution for this data.
Answer: Set $k = 5$ because $2^5 = 32 > 25$.

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

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
Objective: 2.2.1

120) 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 $2^5 = 32 > 25$.

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

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

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

Diff: 1
Keywords: relative frequency distribution, grouped data
Objective: 2.2.1

121) 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 $2^5 = 32 > 25$.

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

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	

$P(x \le 15) = 0.64$

Diff: 1
Keywords: relative frequency distribution, grouped data
Objective: 2.2.1

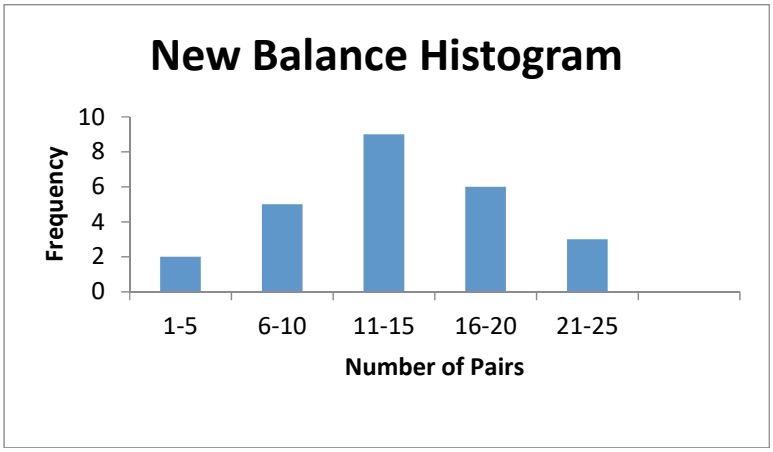
122) The following data show the number of pairs of men's New Balance sneakers that were sold over the last 25 weeks at a discount shoe store.

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 $2^5 = 32 > 25$.

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

Number of Pairs (Bin)	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
Objective: 2.2.2

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 frequency distribution for this data.
Answer: Set $k = 5$ because $2^5 = 32 > 20$

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

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
Objective: 2.2.1

124) 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 $2^5 = 32 > 20$

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

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
Objective: 2.2.1

125) 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 $2^5 = 32 > 20$

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

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
Objective: 2.2.1

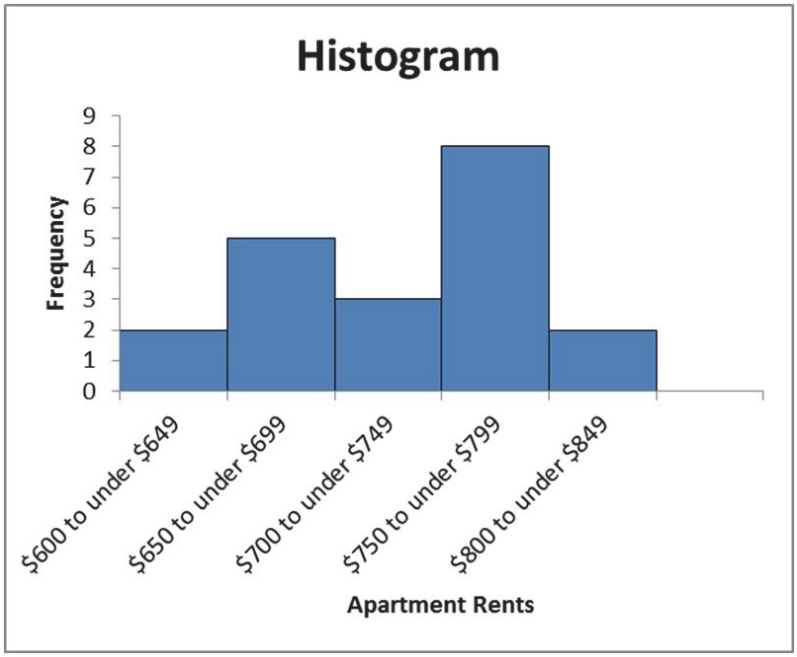
126) The following data show the monthly rental for a random sample of one-bedroom apartments in York, Pennsylvania.

$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 $2^5 = 32 > 20$

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

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



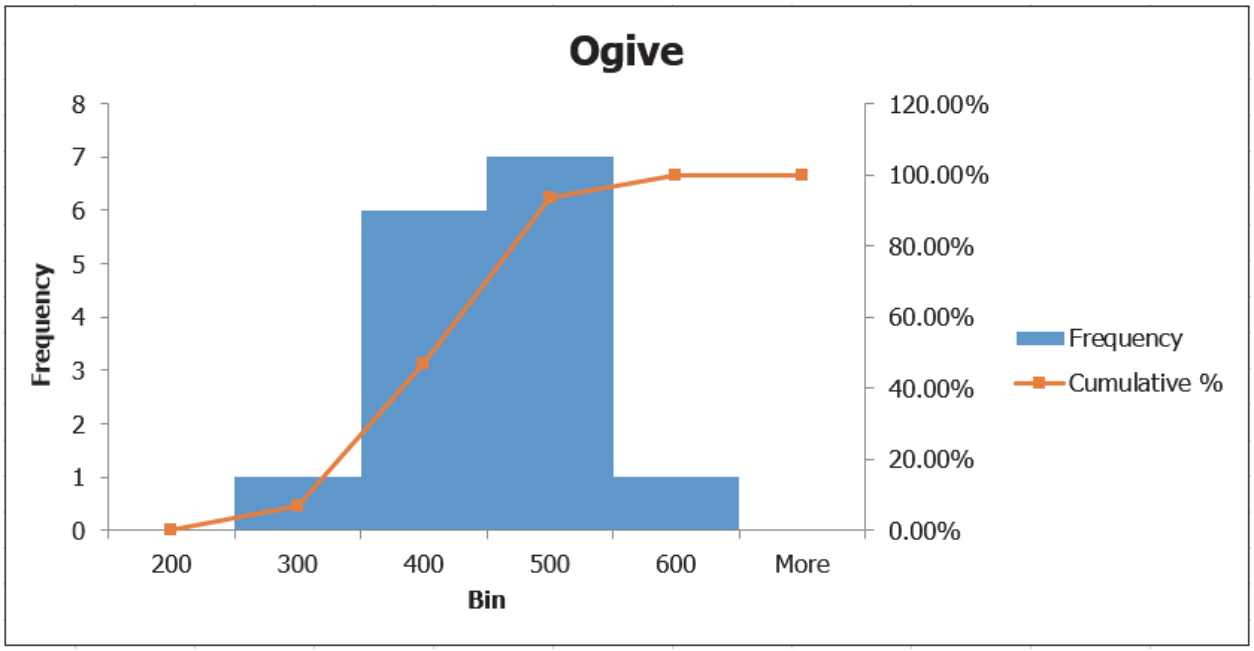
Diff: 1
Keywords: frequency distribution, grouped data
Objective: 2.2.2

127) The following table shows the number of points scored by the Green Bay Packers of the National Football League over 15 seasons.

Green Bay

560	388	461	419	435	301	298	424
442	398	390	353	357	408	422	

Use four classes, each with a class width of 100. Start classes with 201-300, 301-400, and so on, and construct an ogive. What conclusions can you draw?
Answer:



The highest frequency of Green Bay scores per season was between 400 and 500 points

Diff: 2
Keywords: ogive
Objective: 2.2.2

128) The following table shows the number of points scored by the Green Bay Packers and the Detroit Lions of the National Football League over 15 seasons.

Green Bay

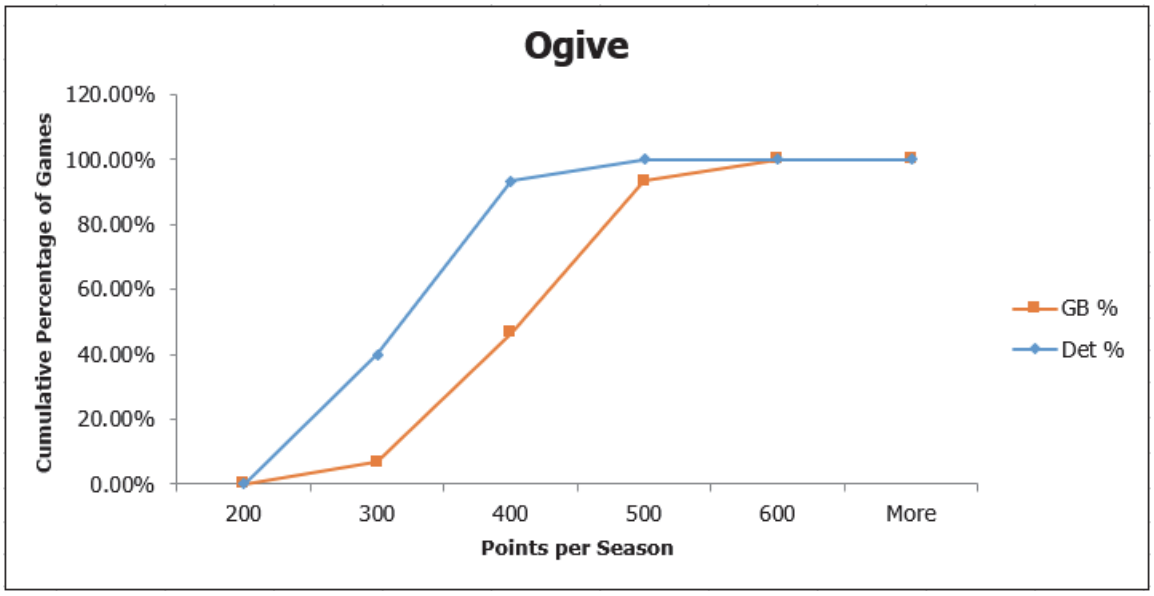
560	388	461	419	435	301	298	424
442	398	390	353	357	408	422	

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 two ogives. What conclusions can you draw comparing these two teams?

Answer:

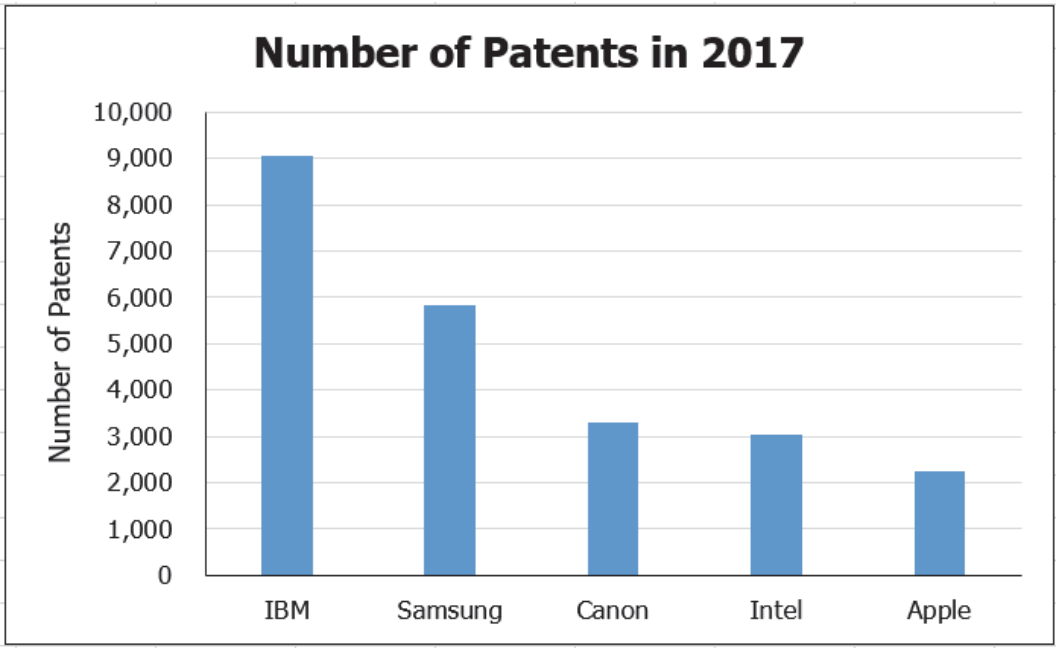


Green Bay tended to score more points per season than Detroit during this time span.
Diff: 2
Keywords: ogive
Objective: 2.2.2

129) The following table shows the number of patents that various corporations filed in 2017.

Company	Number of Patents in 2017
IBM	9,043
Samsung	5,837
Canon	3285
Apple	2229
Intel	3,023

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

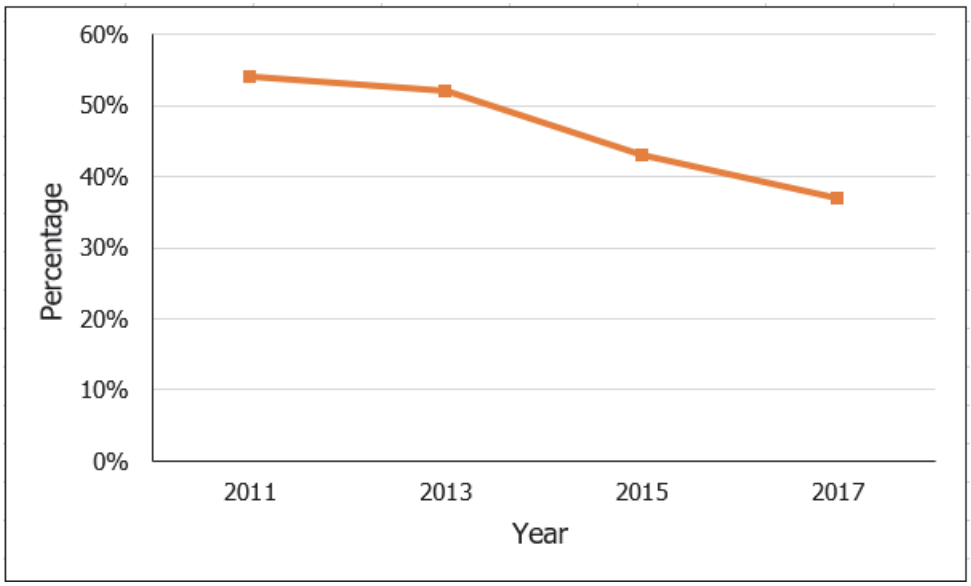


Diff: 2
Keywords: bar charts
Objective: 2.3.1

130) The following table shows the percentage of adults (18- to 34-year-olds) invested in the stock market from a Gallup survey.

Year	Percentage
2011	54%
2013	52%
2015	43%
2017	37%

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

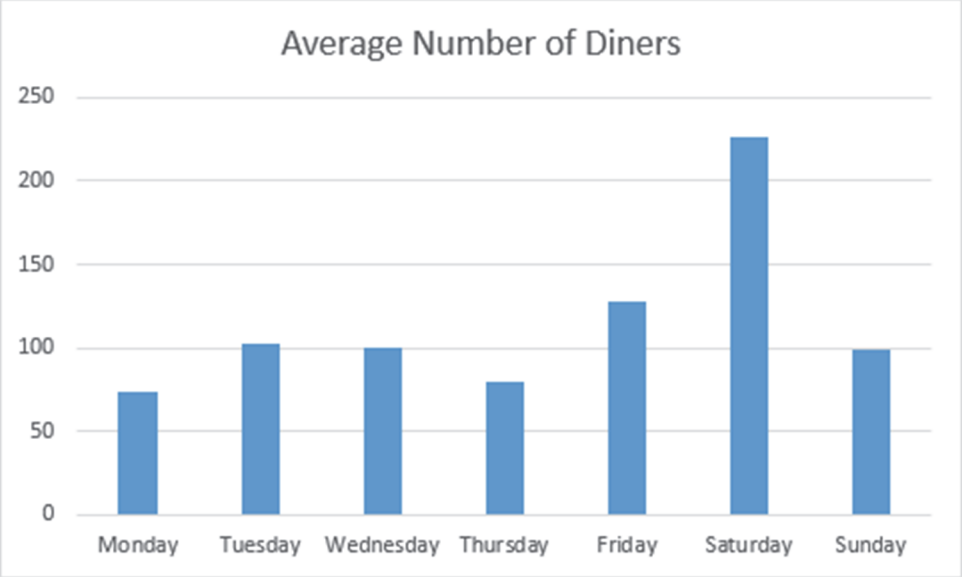


Diff: 2
Keywords: line charts
Objective: 2.6.1

131) The following table shows the average number of diners at a restaurant during each day of the week.

Day	Average Number of Diners
Monday	73
Tuesday	102
Wednesday	100
Thursday	79
Friday	128
Saturday	227
Sunday	99

Construct the type of chart that would be most appropriate if the goal was to compare the number of diners during the week.
Answer:

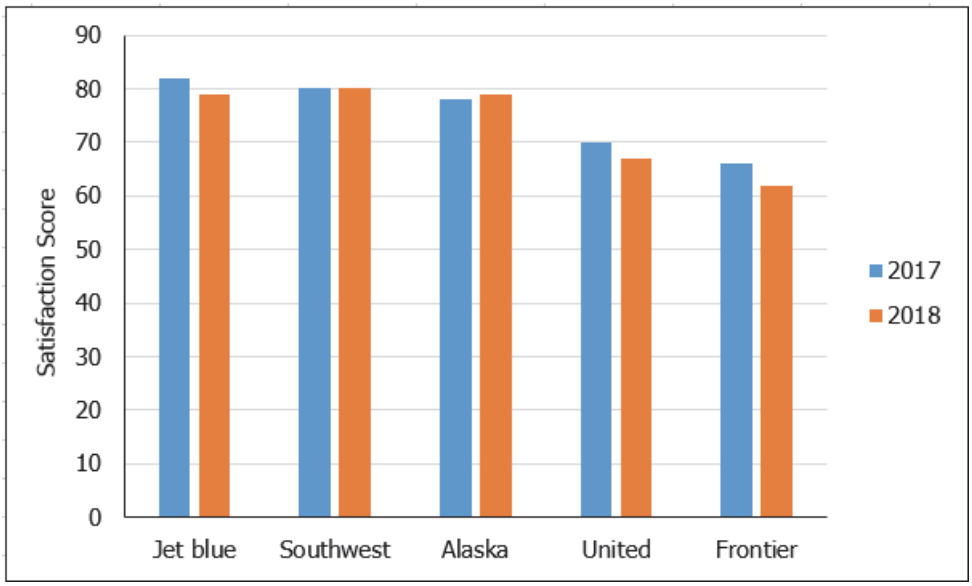


Diff: 2
Keywords: bar charts
Objective: 2.3.1

132) The following table shows customer satisfaction scores for five airlines in 2017 and 2018.

Airline	**2017**	**2018**
JetBlue	82	79
Southwest	80	80
Alaska	78	79
United	70	67
Frontier	66	62

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:

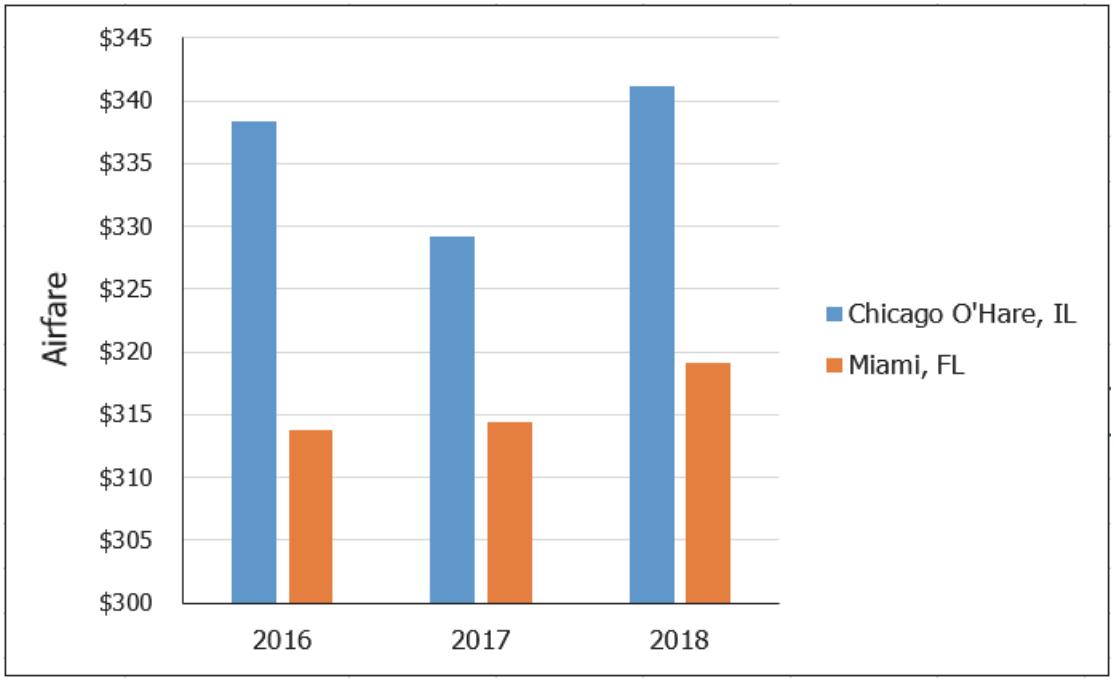


Diff: 1
Keywords: clustered bar charts
Objective: 2.3.1

133) The following table shows the average roundtrip airfares for flights at Chicago O'Hare, IL and Miami, FL for quarter one of each of three years, according to the Bureau of National Statistics.

Year	Chicago O'Hare, IL	Miami, FL
2016	$338	$314
2017	$329	$314
2018	$341	$319

Construct the type of chart that would be most appropriate if the goal was to compare the average roundtrip airfares at both airports.
Answer:

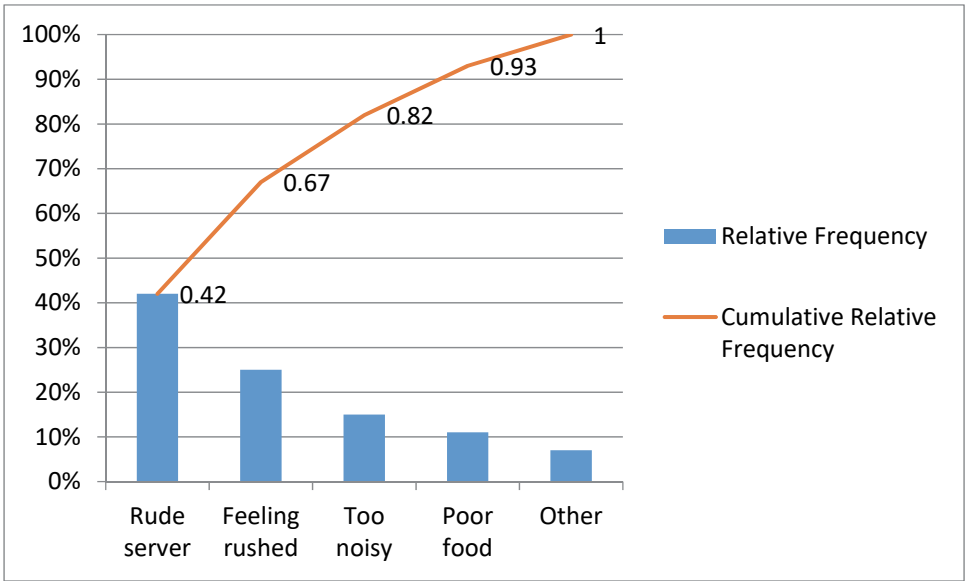


Diff: 2
Keywords: clustered bar charts
Objective: 2.3.1

134) 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:

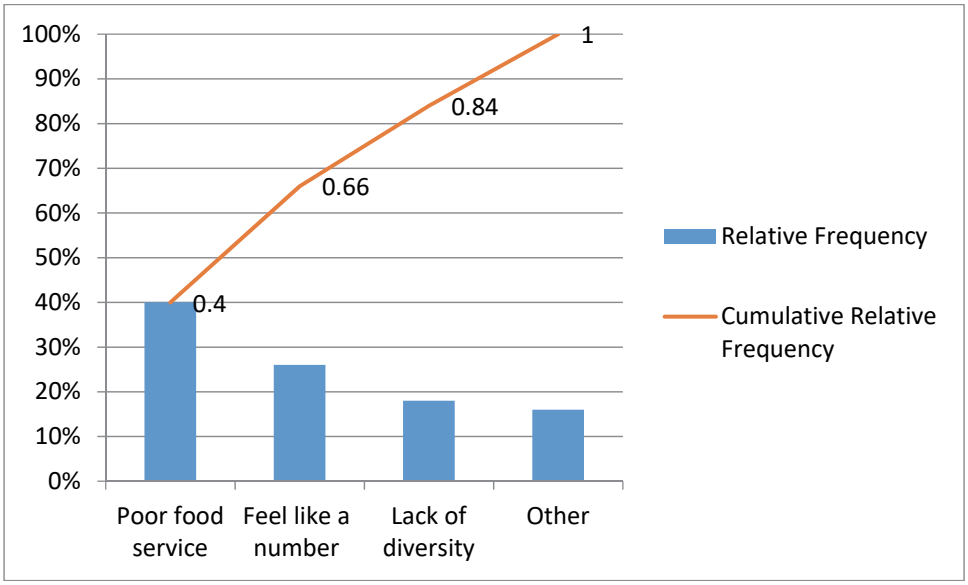


Diff: 2
Keywords: Pareto charts
Objective: 2.3.1

135) 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:

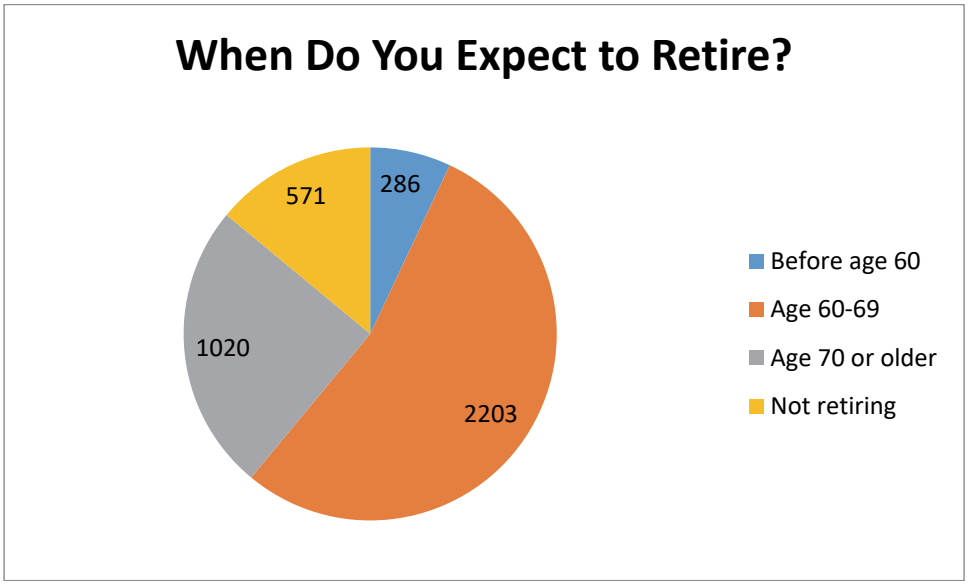


Diff: 2
Keywords: Pareto charts
Objective: 2.3.1

136) 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:

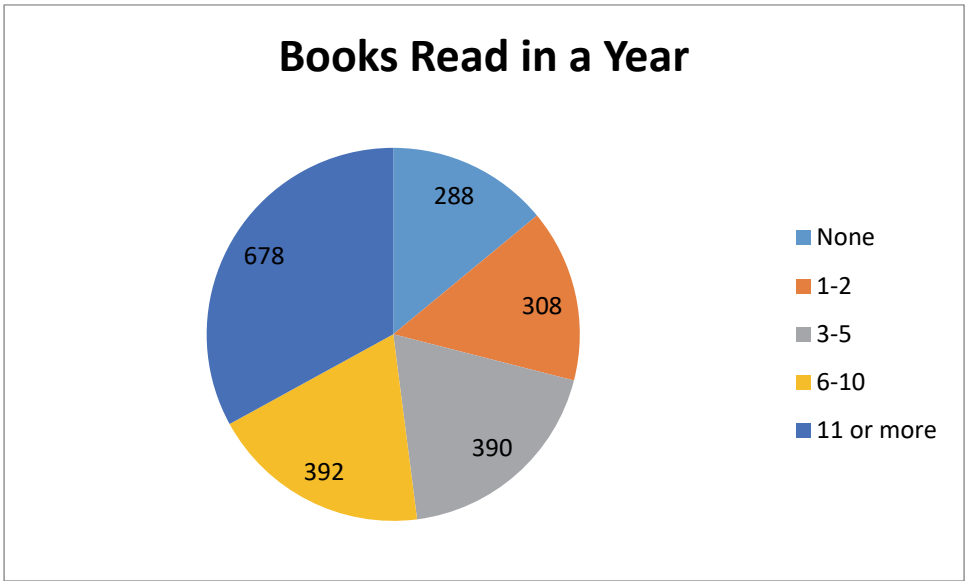


Diff: 2
Keywords: pie charts
Objective: 2.3.1

137) 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
Objective: 2.3.1

138) 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
Objective: 2.4.1

139) 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
Objective: 2.4.1

140) 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
Objective: 2.5.1

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

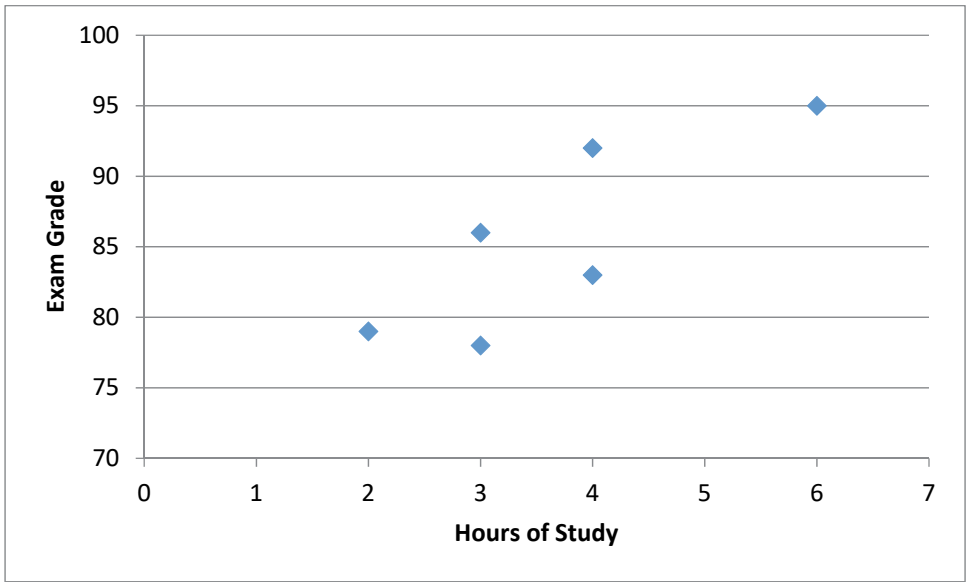
77	77	81	81	82	83	83	84	84	87
87	89	90	92	92	92	93	93	96	97

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
Objective: 2.2.5

142) 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:

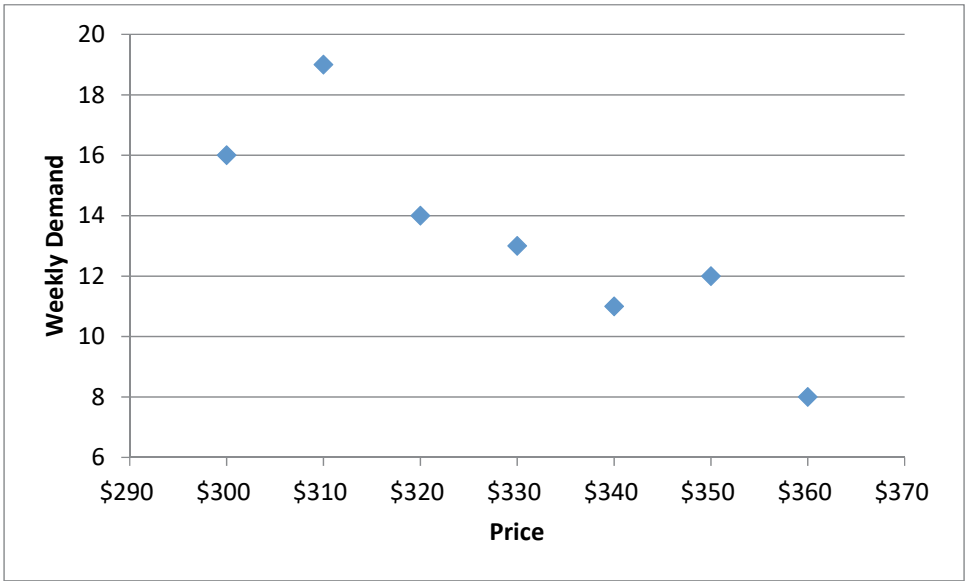


It appears that the students who studied longer, in general, did better on the exam.
Diff: 1
Keywords: scatter plots
Objective: 2.2.6

143) 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:

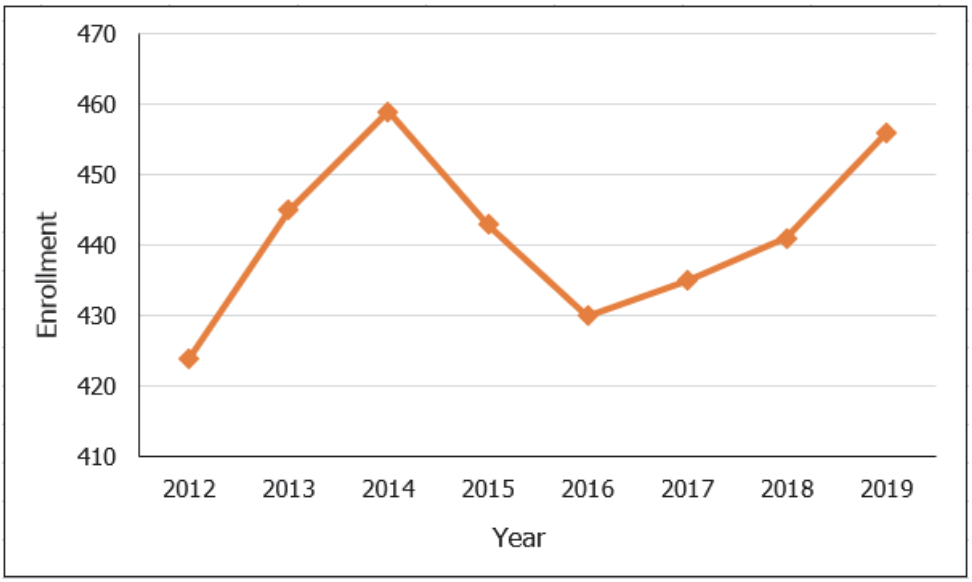


It appears that as the price increases, demand for the camera decreases.
Diff: 1
Keywords: scatter plots
Objective: 2.2.6

144) The following table shows the enrollment at a private grade school from 2012 until 2019.

Year	Enrollment
2012	424
2013	445
2014	459
2015	443
2016	430
2017	435
2018	441
2019	456

Construct a line chart to display this data.
Answer:

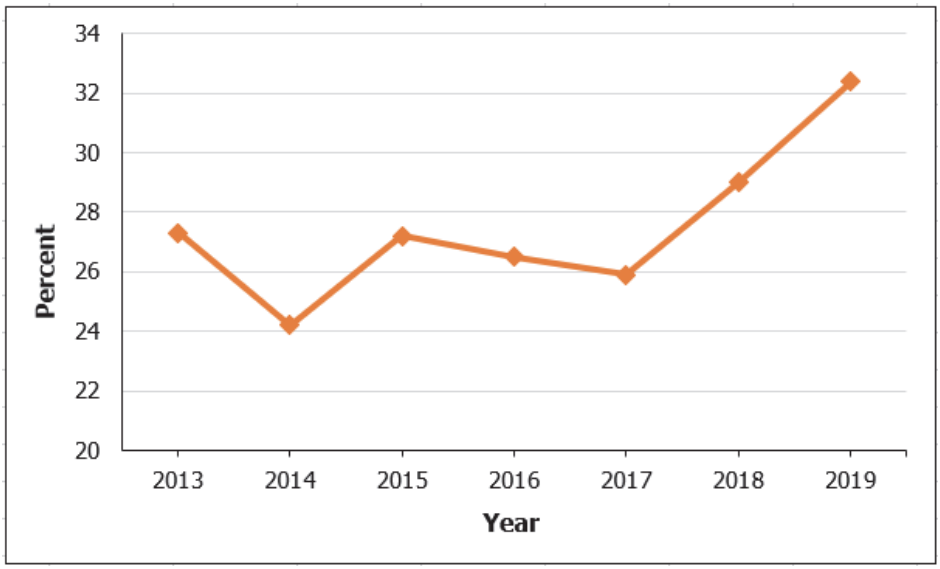


Diff: 1
Keywords: line chart
Objective: 2.2.6

145) The following table shows the percent of car sales that were SUVs at a car dealership from 2013 until 2019.

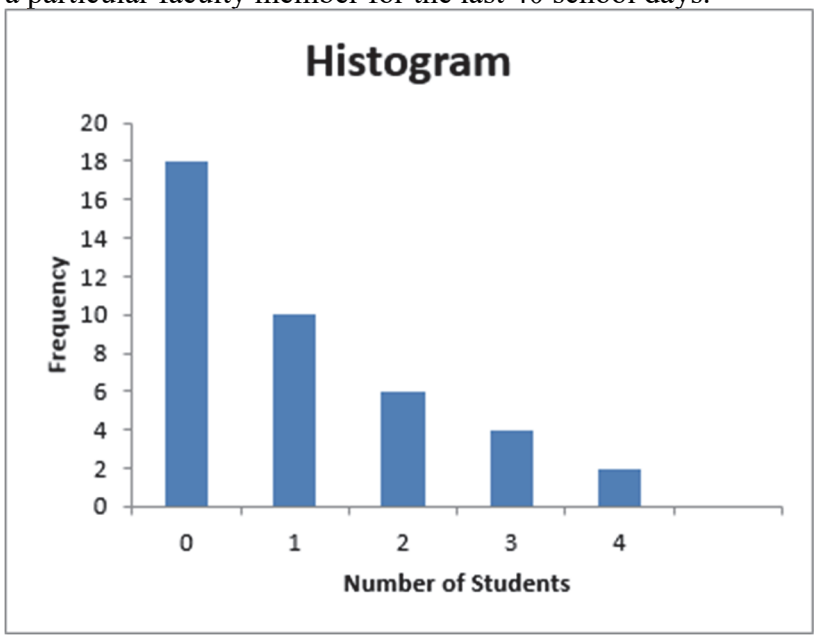
Year	Percent
2013	27.3
2014	24.2
2015	27.2
2016	26.5
2017	25.9
2018	29.0
2019	32.4

Construct a line chart to display this data.
Answer:



Diff: 1
Keywords: line chart
Objective: 2.2.6

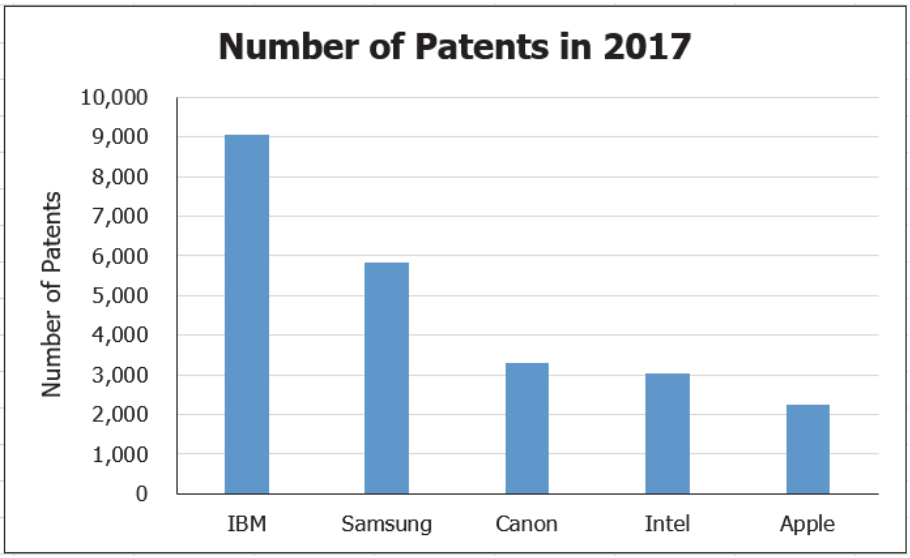
146) The following histogram shows the number of students that came to office hours per day for a particular faculty member for the last 40 school days.



Which of the following statements is **not** correct?
A) For 18 days, no one came for office hours.
B) For 2 days, 4 students came for office hours.
C) Ten students came for student hours for one day.
D) For most of the days, zero to one student came for office hours.

Answer: C
Diff: 2
Keywords: histogram
Objective: 2.EOC.1

147) The following bar chart shows the number of patents that various corporations filed in 2017.



Which of the following statements is correct?
A) Intel filed for approximately 3,000 patents.
B) Samsung had the highest number of patents.
C) Canon had the lowest number of patents.
D) Apple had higher number of patents than Intel.

Answer: A
Diff: 1
Keywords: bar charts
Objective: 2.EOC.2

148) A survey of 4,000 workers was asked when they expected to retire. The following table shows the frequency distribution of the respondents. What chart best displays this data and why?

Response	**Frequency**
Before age 60	206
Age 60-69	2,203
Age 70 or older	1,020
Not retiring	571

A) A histogram since the data is continuous.
B) A pie chart since the data is qualitative.
C) A line chart since it is a time-series data.
D) A stacked bar chart since we need to group several values in a single column.

Answer: B
Diff: 2
Keywords: pie charts, qualitative data
Objective: 2.EOC.3

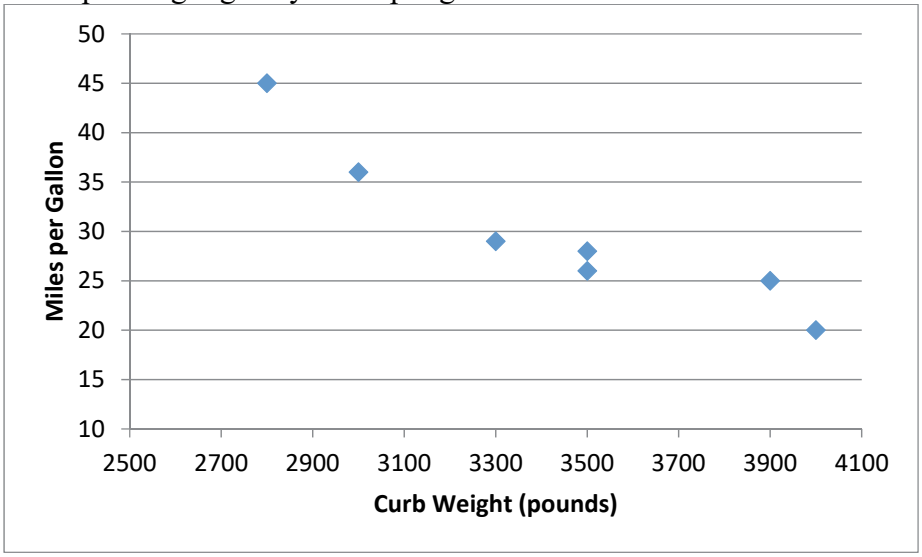
149) The following table shows customer satisfaction scores for five airlines in 2018. What chart best displays this data and why?

Airline	**2018**
JetBlue	79
Southwest	80
Alaska	79
United	67
Frontier	62

A) A histogram since the data is continuous.
B) A line chart since it is a time-series data.
C) A bar chart since the data is qualitative.
D) A stacked bar chart since we need to group several values in a single column.

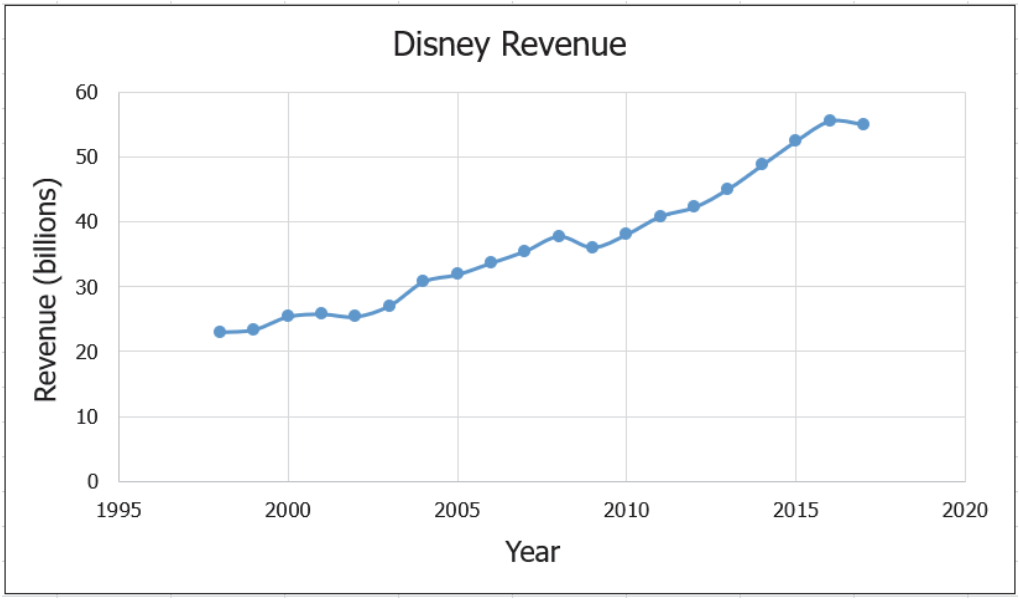
Answer: C
Diff: 2
Keywords: line charts, qualitative data
Objective: 2.EOC.3

150) 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) As the curb weight increases, the highway miles per gallon tend to decrease.
B) As the curb weight decreases, the highway miles per gallon tend to decrease.
C) There is no relationship between curb weight and miles per gallon.
D) As the curb weight increases, the highway miles per gallon tend to increase.
Answer: A
Diff: 1
Keywords: scatter plots
Objective: 2.EOC.4

151) The following line chart shows Disney's revenue (in billions) from 1998 until 2017.



Which one of the following statements is correct?
A) Disney's revenue has been continuously increasing.
B) Disney's revenue has been continuously decreasing.
C) Disney's highest revenue was in 2010.
D) Disney's revenue in 2009 was lower than 2008.
Answer: D
Diff: 1
Keywords: line chart
Objective: 2.EOC.4

152) A sample of 20 first-year students was asked if they live on-campus and if they own a car. The following table shows the responses.

Live on Campus	Own a Car	Live on Campus	Own a Car
Yes	No	Yes	No
No	No	Yes	No
Yes	Yes	Yes	No
Yes	No	No	No
Yes	Yes	Yes	Yes
No	Yes	Yes	No
Yes	No	Yes	No
Yes	No	Yes	No
Yes	No	Yes	No
No	Yes	Yes	No

Construct a contingency table for this data.

Answer:

		Own a Car		
		No	Yes	Total
Live on Campus	No	2	2	4
	Yes	13	3	16
	Total	15	5	20

Diff: 1
Keywords: contingency tables
Objective: 2.EOC.5

153) A sample of 20 first-year students was asked if they live on-campus and if they own a car. The following contingency table shows the responses.

		Own a Car		
		No	Yes	Total
Live on Campus	No	2	2	4
	Yes	13	3	16
	Total	15	5	20

Which one of the following statements is correct?
A) 75% of students in this sample do not live on-campus.
B) 75% of students in this sample do not own a car.
C) 65% of students in this sample live on campus and own a car.
D) 10% of students in this sample live on campus and do not own a car.
Answer: B
Diff: 2
Keywords: contingency tables
Objective: 2.EOC.5