Student: _____

1. The *lower class limit* represents the smallest data value that can be included in the class.
   True False

2. A grouped frequency distribution is used when the range of the data values is relatively small.
   True False

3. If the limits for a class were 20-38, the boundaries would be 19.5-38.5.
   True False

4. For the class 16.3-23.8, the width is 7.
   True False

5. An ogive graph is also called a cumulative frequency graph.
   True False

6. The cumulative frequency is the sum of the frequencies accumulated to the upper boundary of a class in the distribution.
   True False

7. A frequency polygon and a histogram have the same overall shape.
   True False

8. An ogive and a frequency polygon have the same overall shape.
   True False

9. The frequency polygon is a graph that displays the data by using lines that connect points plotted for the frequencies at the midpoints of the classes.
   True False

10. A histogram uses the midpoints for the *x* values and the frequencies as the *y* values.
    True False

11. A histogram is a graph that represents the cumulative frequencies for the classes in a frequency distribution.
    True False

12. A Pareto chart is useful for showing percentages of the total.
    True False

13. A stem and leaf plot is useful for keeping more precision than a grouped frequency distribution.
    True False

14. Graphs give a visual representation that enables readers to analyze and interpret data more easily than they could simply by looking at numbers.
    True False

15. A time series graph represents data that occur over a specific period.
    True False

16. A time series graph is useful for detecting long term trends over a period of time.
    True False

17. A Pareto chart arranges data from largest to smallest according to frequencies.
    True False

18. When two sets of data are compared on the same graph using two lines, it is called a compound time series graph.
    True False

19. A pie graph would best represent the number of inches of rain that has fallen in Thunder Bay, Ontario each day for the past 2 months.
    True False

20. A pie graph was created showing the number of children per family. If 234 families were in the survey and the section depicting families with three children represented 120°, the number of families with three children was 78.
    True False

21. In order to graphically compare two frequency distributions, one should use relative frequency distributions in order to take differing sample sizes into account.
    True False

22. The larger the sample size, the larger the relative frequencies.
    True False

23. The rate of mortality of children is very high in the first weeks of life. It then decreases rapidly until 1 or 2 years of age and then increases slowly into the teen years. In this situation one should construct relative frequency distributions (per year of age) with narrow class widths during the first year of life so as to exhibit the quickly changing mortality rate.
    True False

24. One disadvantage of pie charts is that it is difficult to visually compare 2 frequency distributions. Plotting relative frequency distributions (polygons or ogives) on the same axes is usually more informative.
    True False

25. A stem and leaf plot is a data plot that uses part of a data value as the stem and part of the data value as the leaf to form groups or classes.
    True False

26. Which of the following should not be done when constructing a frequency distribution?
    A. select the number of classes desired
    B. find the range
    C. use a class width with an even number
    D. use classes that are mutually exclusive

27. For the class 10-18, the upper class limit is
    A. 9
    B. 10
    C. 18
    D. 19

28. What are the boundaries of the class 4-18?
    A. 4
    B. 14
    C. 4 and 18
    D. 3.5 and 14.5

29. What would be the boundaries on the average age for high school graduates if they were reported to be 18 years old?
    A. 17.5-18.5 years old
    B. 17.5-19.5 years old
    C. 17.6-18.6 years old
    D. 17.5-19 years old

30. What is the midpoint of the class 4-15?
    A. 4
    B. 9.5
    C. 4 and 15
    D. 9.5 and 11

31. Greg wants to construct a frequency distribution for the political affiliation of the employees at Owen's Hardware Store. What type of distribution should he use?
    A. ungrouped
    B. grouped
    C. categorical
    D. cumulative

32. What is the lower class limit in the class 13-17?
    A. 15
    B. 17
    C. 13
    D. 12.5

33. What is the midpoint of the classes 13.5-17.3?
    A. 13.4
    B. 15.4
    C. 17.3
    D. 14.3

34. Using the class 23-35, what is the upper class boundary?
    A. 35
    B. 29
    C. 35.5
    D. 23

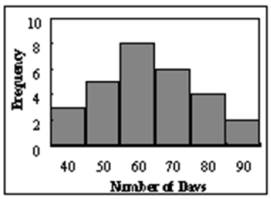
35. What is the lower class limit in the class -7 to 14
    A. -7
    B. 3.5
    C. 14
    D. -7.5

36. The range 31.87-34.33 is not a good choice for class boundaries because
    A. it is too narrow
    B. it is too wide
    C. the class limits are difficult to interpret
    D. it has an odd width

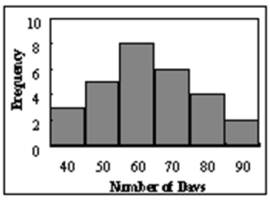
37. For the numbers -5, -2, -7, and 0, which of the following that includes all four is a good class?
    A. -8 to 1
    B. -5 to 1
    C. -7 to 0
    D. -7 to 1

38. Thirty students recorded the colours of their eyes, choosing from the colours brown, blue, green, hazel, and black. This data can be appropriately summarized in a
    A. Open-ended distribution
    B. Categorical frequency distribution
    C. Grouped frequency distribution
    D. Upper boundary

39. What are the boundaries of the class 1.87-3.43?
    A. 1.9-3.4
    B. 1.87-3.43
    C. 1.879-3.439
    D. 1.865-3.435

40. 

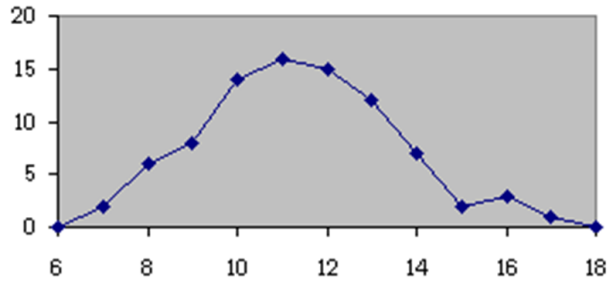
    Find the class with the least number of data values.
    A. 70
    B. 90
    C. 60
    D. 40

41. 

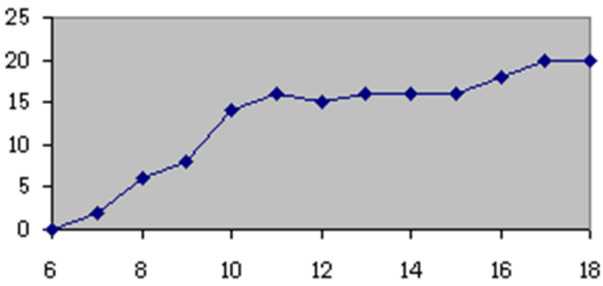
    Find the class with the greatest number of data values.
    A. 70
    B. 90
    C. 60
    D. 40

42. Which of the following could be a cumulative frequency graph?

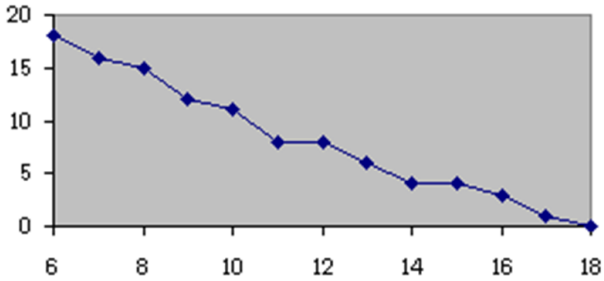
A.



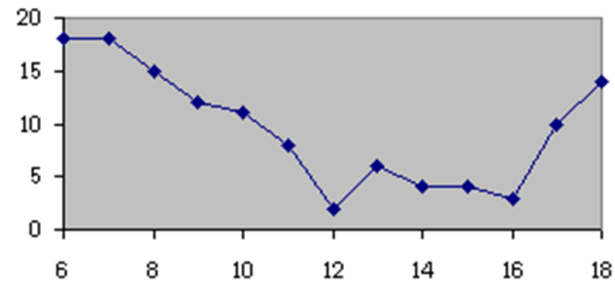
B.



C.

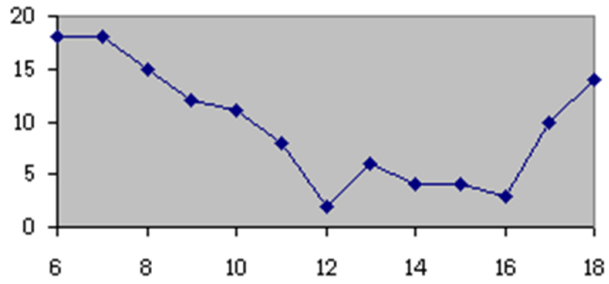


D.

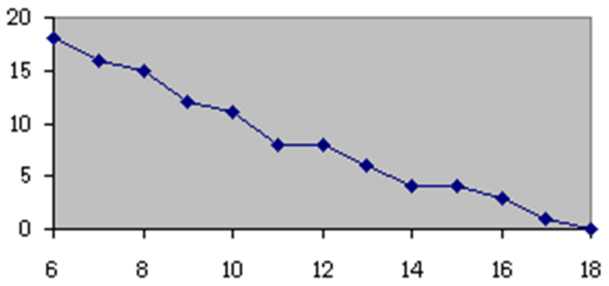


43. Which of the following could be an ogive?

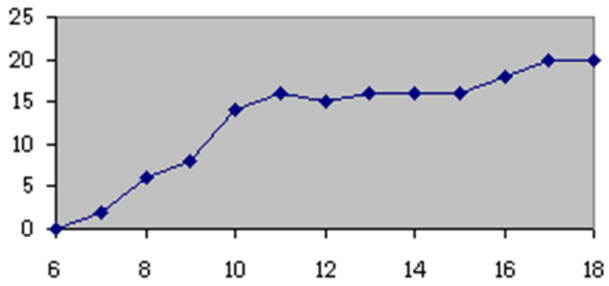
A.



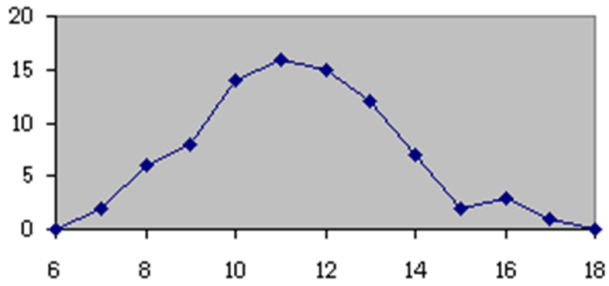
B.



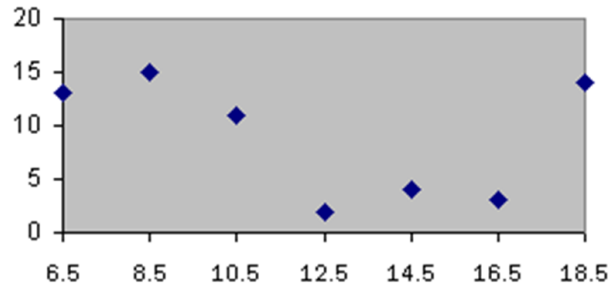
C.

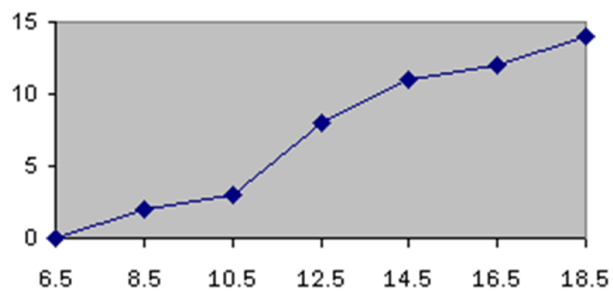


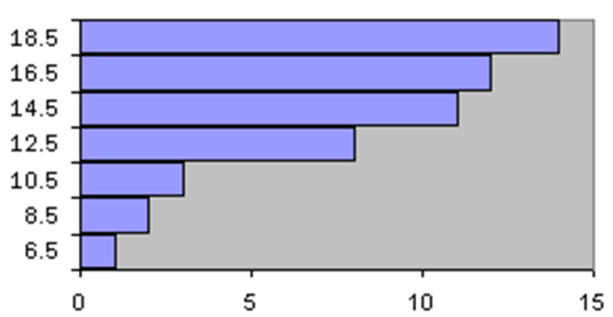
D.

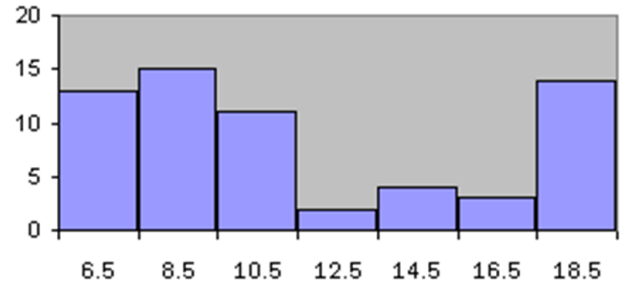


44. Which of the following is a histogram?

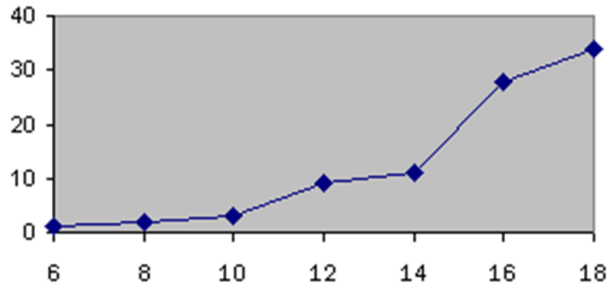
A. 

B. 

C. 

D. 

45. The total frequency of the data whose ogive shown below is approximately



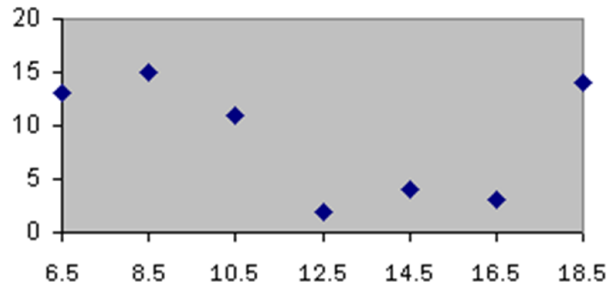
A. 12
B. 18
C. 34
D. 90

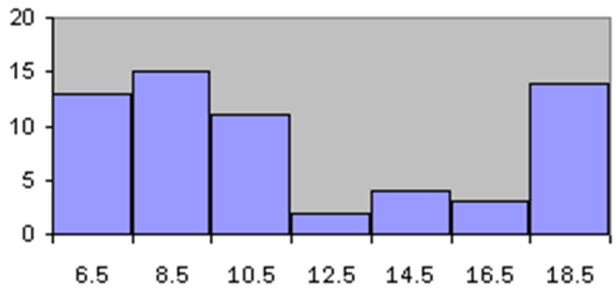
46. The graphs that have their distributions as proportions instead of raw data as frequencies are called
A. relative frequency graphs.
B. ogive graphs.
C. histograms.
D. frequency polygons.

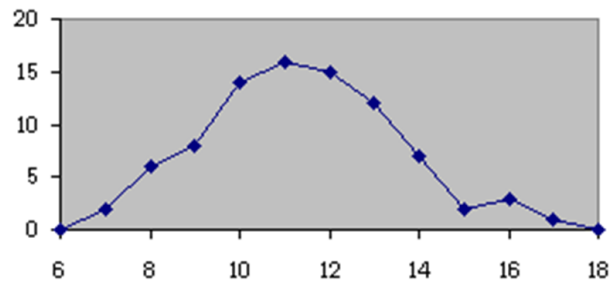
47. Which type of graph represents the data by using vertical bars of various heights to indicate frequencies?

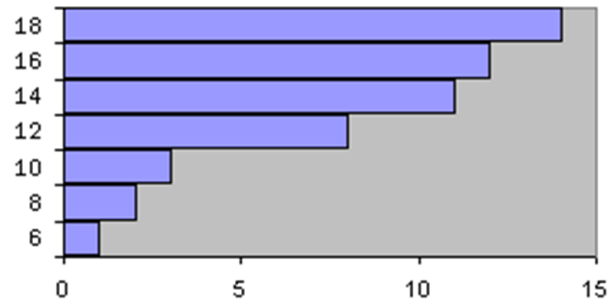
A. ogive
B. frequency polygon
C. histogram
D. cumulative frequency

48. Which of the following is a frequency polygon?

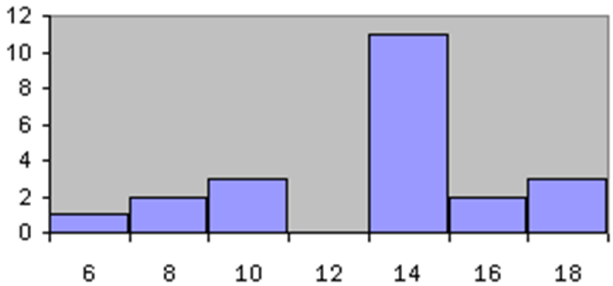
A.


B.


C.


D.


49. The total frequency of the data whose histogram is shown



below
is approximately

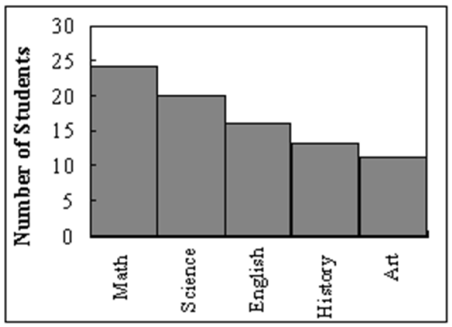
A. 11
B. 22
C. 50
D. 100

50. Given the following frequency distribution, how many pieces of data were less than 28.5?

Class Boundaries	Frequencies
13.5–18.5	4
18.5–23.5	9
23.5–28.5	12
28.5–33.5	15
33.5–38.5	17

A. 12
B. 9
C. 25
D. 17

51. A weatherman records the amount of rain that has fallen in Vancouver, B.C. during each day. What type of graph should he use?
A. pie graph
B. pictograph
C. time series graph
D. ogive

52. 

What type of graph is the figure below?
A. Pareto chart
B. pictograph
C. ogive
D. pie graph

53. A Pareto chart does <u>not</u> have which of the following properties?
A. It is a bar chart
B. The frequencies are arranged from highest to lowest
C. The frequencies are arranged from lowest to highest
D. It is used to represent categorical data

54. A pie graph is <u>not</u> useful to show which of the following characteristics of data?
A. The trend of the data over time
B. The relative frequencies of each category of the distribution
C. Which categories make up the larger proportions of the total
D. Which categories make up the smaller proportions of the total

55. A time series graph is useful for which of the following purposes?
A. Representing relative frequencies of categories in a specific year
B. Representing the cumulative frequencies of the data in a specific year
C. Representing the frequencies of the data, sorted from largest to smallest
D. Representing the frequencies of a data category over a period of several years

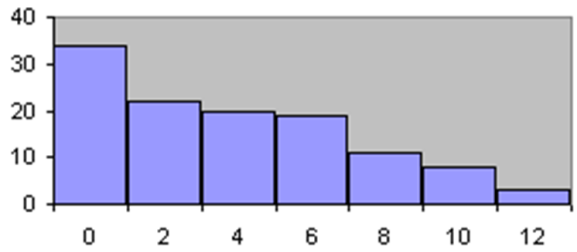
56. Pareto charts have units that are used for the frequency that are
A. decreasing in size.
B. increasing in size.
C. equal in size.
D. proportional in size.

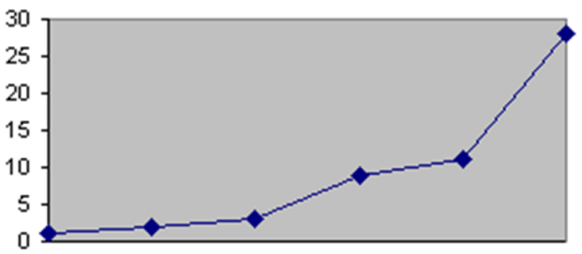
57. An automobile dealer wants to construct a pie graph to represent types of cars sold in July. He sold 72 cars; 16 of which were convertibles. The convertibles will represent how many degrees in the circle?
    A. 60°
    B. 80°
    C. 100°
    D. 50°

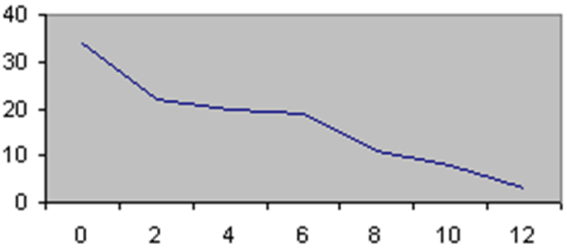
58. In a pie graph, if pepperoni pizza were 24/72 of the distribution, how many degrees would be needed to represent pepperoni?
    A. 90°
    B. 120°
    C. 60°
    D. 150°

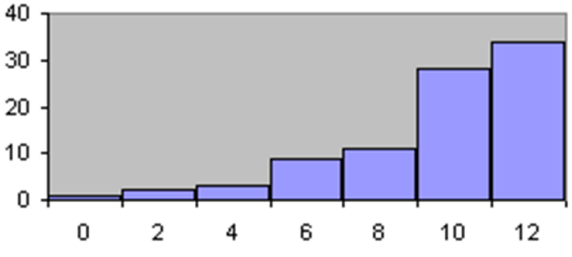
59. Which graph should be used to represent the frequencies that certain types of classes are taken at Sir Robert Borden High School?
    A. Pareto chart
    B. time series graph
    C. pie graph
    D. pictograph

60. Exaggerating a one-dimensional increase by showing it in two dimensions is an example of a(n)
    A. pictograph.
    B. pie graph.
    C. ogive.
    D. misleading graph.

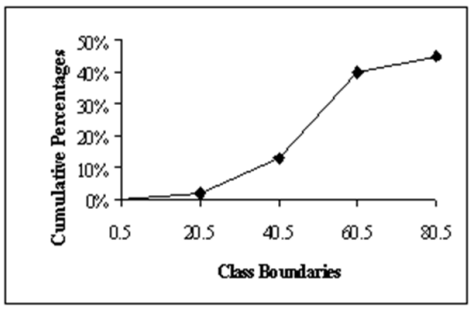
61. Which of the following is a Pareto chart?
    A.


    B.


    C.


    D.


62. Karen is constructing a pie graph to represent the number of hours her classmates do homework each day. She found that 8/24 did homework for three hours each day. In her pie graph, this would represent how many degrees?
    A. 135°
    B. 45°
    C. 120°
    D. 240°

63. 

    In the figure below, what class boundary has 30% of the data?

    A. 0.5-20.5
    B. 20.5-40.5
    C. 40.5-60.5
    D. 60.5-80.5

64. For the table below, calculate the percent of students that fell within the B class.

Grade	Class Boundaries	Frequency
A	89.5–99.5	4
B	79.5–89.5	7
C	69.5–79.5	11
D	59.5–69.5	3
F	49.5–59.5	3

    A. 14%
    B. 25%
    C. 11%
    D. 39%

65. Choose the correct statement describing the following stem and leaf plot for grades on a linear algebra exam.

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

    A. The range of the grades is between 23 and 98.
    B. Of the 29 students who took the exam, nine scored between 80 and 89.
    C. There are no gaps in the data.
    D. The data is bimodal.

66. When data are collected in original form, they are called _____.
    _____

67. The _____ is the number of values in a specific class of a frequency distribution.
    _____

68. The _____ is obtained by first adding the lower and upper limits and then dividing by 2.
    _____

69. When the range is large and classes that are several units in width are needed, a _____ frequency distribution is used.

_____

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

_____

71. The percentage of white, wheat, and rye bread sold at a supermarket each week is best shown using a _____ graph

_____

72. A _____ would most appropriately represent the yearly-number of students that were enrolled in Statistics over the past ten years.

_____

73. If a frequency distribution had class boundaries of 132.5-147.5, what would be the class width?

74. If data is clustered at one end or the other, it indicates that there is a _____.

75. Using the following frequency distribution, construct a frequency polygon.

Temperature	Frequency
28.5–31.5	1
31.5–34.5	3
34.5–37.5	6
37.5–40.5	10
40.5–43.5	8
43.5–46.5	7

76. A local fundraiser wants to graphically display the contributions they have received over the past five years. Construct a time series graph for the following data.

Year	Contributions
1996	$550
1997	$700
1998	$800
1999	$1050
2000	$1200

77. The following information shows the colours of cars preferred by customers. Draw a pie graph and indicate how many degrees the black represents in a pie graph?

Colours	Number
Red	50
Black	60
White	30
Green	20
Blue	40

78. Construct a Pareto chart for the following distribution:

Year in School	Number of Students
Freshmen	25
Sophomores	13
Juniors	39
Seniors	19

79. Construct a pie chart for the following distribution:

Year in School	Number of Students
Freshmen	24
Sophomores	14
Juniors	42
Seniors	17

80. Construct a Pareto chart for the following distribution:

Major	Percent of Students
Business	47
Science	14
Engineering	44
Social Sciences	8
Liberal Arts	25
Education	19

81. Construct a pie chart for the following distribution:

Major	Percent of Students
Business	159
Science	45
Engineering	75
Social Sciences	50
Liberal Arts	60
Education	110

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

Cookie Types	**Number Sold**
Chocolate Chip	20
Peanut Butter	15
Oatmeal	30
Sugar	10

83. Given the following two sets of data, draw a stem and leaf plot.
12, 22, 22, 24, 34, 31, 26, 35, 27, 39, 49, 10
45, 36, 23, 16, 37, 28, 18, 13, 10, 23, 30, 31

ch02 Key

1. *(p. 35)* TRUE
2. *(p. 35)* FALSE
3. *(p. 35)* TRUE
4. *(p. 35)* FALSE
5. *(p. 47)* TRUE
6. *(p. 47)* TRUE
7. *(p. 46)* TRUE
8. *(p. 47)* FALSE
9. *(p. 46)* TRUE
10. *(p. 45)* FALSE
11. *(p. 45)* FALSE
12. *(p. 55)* FALSE
13. *(p. 63)* TRUE
14. *(p. 43)* TRUE
15. *(p. 57)* TRUE
16. *(p. 57)* TRUE
17. *(p. 55)* TRUE
18. *(p. 58)* TRUE
19. *(p. 58)* FALSE
20. *(p. 59)* TRUE
21. *(p. 48)* TRUE
22. *(p. 48)* FALSE
23. *(p. 57)* TRUE
24. *(p. 48)* TRUE
25. *(p. 63)* TRUE
26. *(p. 35)* C
27. *(p. 35)* C
28. *(p. 35)* D
29. *(p. 35)* A
30. *(p. 36)* B
31. *(p. 40)* C
32. *(p. 35)* C
33. *(p. 36)* B
34. *(p. 35)* C
35. *(p. 35)* A
36. *(p. 35)* C

37. *(p. 35)* D

38. *(p. 33)* B

39. *(p. 35)* D

40. *(p. 33)* B

41. *(p. 33)* C

42. *(p. 47)* B

43. *(p. 47)* C

44. *(p. 45)* D

45. *(p. 47)* C

46. *(p. 48)* A

47. *(p. 45)* C

48. *(p. 46)* C

49. *(p. 45)* B

50. *(p. 38)* C

51. *(p. 57)* C

52. *(p. 55)* A

53. *(p. 55)* C

54. *(p. 58)* A

55. *(p. 57)* D

56. *(p. 55)* C

57. *(p. 59)* B

58. *(p. 59)* B

59. *(p. 55)* A

60. *(p. 61)* D

61. *(p. 55)* A

62. *(p. 59)* C

63. *(p. 35)* C

64. *(p. 35)* B

65. *(p. 63)* B

66. *(p. 33)* raw data

67. *(p. 33)* frequency

68. *(p. 36)* class midpoint

69. *(p. 35)* grouped

70. *(p. 43)* frequency polygon

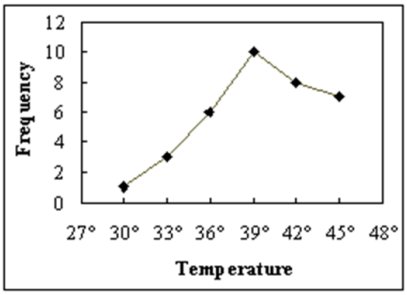
71. *(p. 58)* pie

72. *(p. 57)* time series graph

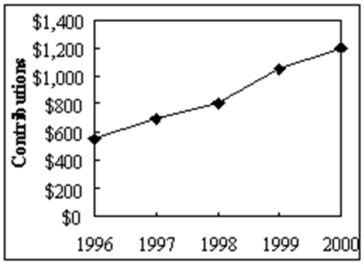
73. *(p. 35)* 15

74. *(p. 50)* skewed distribution

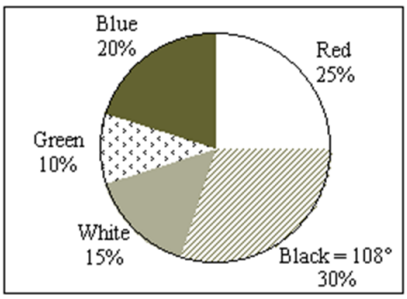
75. *(p. 46)*



76. *(p. 57)*



77. *(p. 59)*

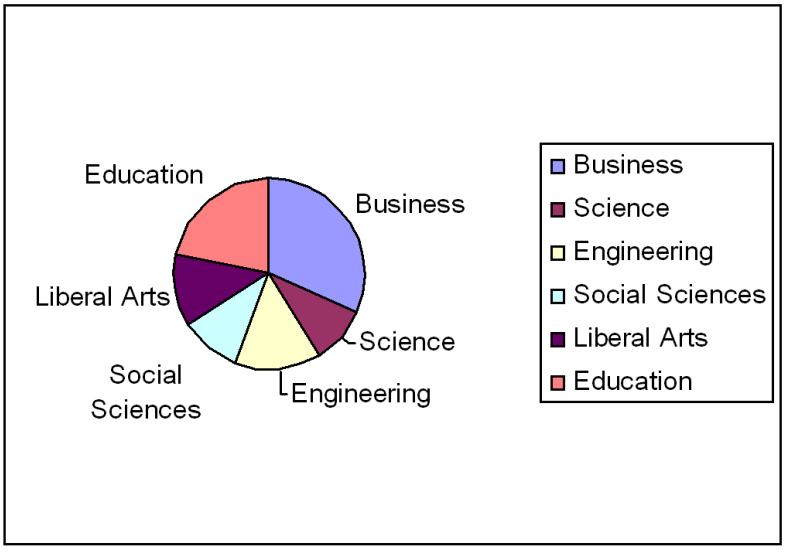


78. *(p. 55)* Sorted in the order Juniors/Freshmen/Seniors/Sophomores.

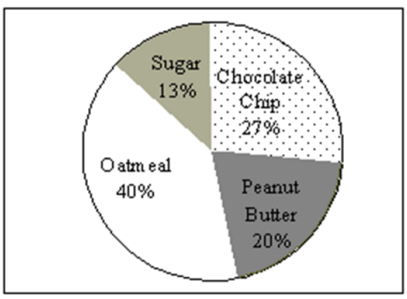
79. *(p. 59)* Varies depending on the numbers. In this case the angles are 89,52,156,63 degrees, respectively

80. *(p. 55)* Sorted in the order Business/Engineering/Liberal Arts/Education/Science/Social Sciences

81. *(p. 59)*



82. *(p. 59)*



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

83. *(p. 64)*

ch02 Summary

Category	*# of Questions*
Bluman - Chapter 02	83
Difficulty: Low	68
Difficulty: Medium	15
Learning Objective: 1	29
Learning Objective: 2	20
Learning Objective: 3	34