9.1 Frequency Distribution and Central Tendency ----------

Prepare a frequency distribution with a column for intervals and frequencies.

1) Use five intervals, starting with 0 – 4.

1 7 14 16 20 23 15 12 9 1 9 13 19 23 18 12 4 10 15 19

2) Use six intervals, starting with 0 – 49.

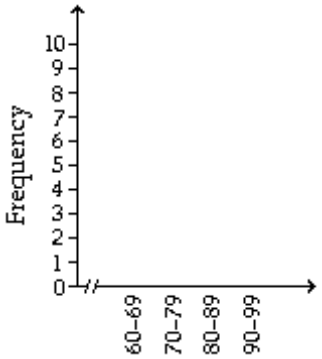
30 72 100 167 249 228 196 139 57 12 67 261
66 149 186 222 192 117 49 99 149 199 178 252

Construct a histogram for the data.

3) Use four intervals, starting with 60–69.

75 94 87 83 78 72 65 75 82 78 97

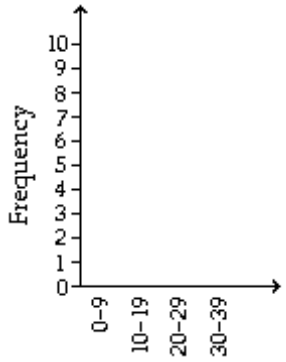
72 87 94 72 83 87 95 85 97 69



4) Use four intervals, starting with 0–9.

6 15 3 36 25 18 12 18 5 30

24 7 0 22 33 24 19 4 12 9



Find the mean for the list of numbers.

5) 48, 59, 88, 21, 132, 80 (Round to the nearest tenth.)

6) 5.683, 12.410, 13.263, 7.936, 14.033 (Round to the nearest thousandth.)

Find the mean. Round to the nearest tenth.

7)

Value	Frequency
16	3
21	4
23	6
27	5
36	1

8)

Value	Frequency
135	3
174	5
230	7
282	7
329	1
411	3

Find the median for the list of numbers.

9) 6, 2, 22, 19, 45, 40, 31

10) 3, 3, 28, 15, 29, 43, 39, 38

Find the indicated value for the data using Statdisk.org

11) 27, 32, 26, 28, 25, 27, 31, 30, 23, 26, 28, 29
Find the mean. Round to the nearest tenth, if necessary.

12) 0.73 1.03 0.67 1.62 0.60 0.61 1.43
1.03 1.53 0.94 0.73 1.22 1.05 0.82
0.47 1.22 0.61 1.05 1.72 0.60 0.56
Find the median. Round to the nearest hundredth.

Find the mode or modes.

13) 5, 9, 38, 3, 2, 8, 23, 1, 4, 16

14) 20, 33, 46, 33, 49, 33, 49

Solve the problem.

15) The following data gives the number of applicants that applied for a job at a given company each month of 1999: 63, 72, 69, 76, 84, 77, 80, 85, 82, 69, 66, 63. What is the median of the data?

16) The table gives the average price of gasoline in dollars per gallon for each month during a recent year in a certain city. Find the mode of these prices.

Month	Price	Month	Price
January	3.21	July	4.04
February	3.35	August	3.96
March	3.75	September	3.93
April	3.84	October	3.80
May	3.91	November	3.49
June	3.94	December	3.48

5.2 Measures of Variation ----------

Find the range for the set of numbers.

17) 113, 523, 179, 652, 437, 317

Find the standard deviation for the set of numbers. Use a table. Then confirm using Statdisk.org

18) 11, 5, 7, 16, 18, 11, 17, 6, 11

In a certain distribution of numbers, the mean is 50 with a standard deviation of 6. Use Chebyshev's theorem to tell the probability that a number lies in the indicated interval.

19) Between 26 and 74

20) Less than 20 or more than 80

Solve the problem. Use Statdisk to do the math.

21) To get the best deal on a CD player, Tom called eight appliance stores and asked the cost of a specific model. The prices he was quoted are listed below. Find the standard deviation. Round your result to the nearest ten cents.

$240 $432 $213 $388 $195 $449 $161 $271

22) The table gives the number of new homes constructed in a certain town in recent years. Find the standard deviation for the data. Round to the nearest tenth.

Year	Number of Homes	Year	Number of Homes
1997	49	2002	33
1998	50	2003	30
1999	52	2004	39
2000	63	2005	46
2001	61	2006	51

Find the percent of the area under a normal curve between the mean and the given number of standard deviations from the mean.

23) 1.64

24) –2.91

Find the percent of the total area under the standard normal curve between the given z–scores.

25) z = 0.70 and z = 1.98

26) $z = -0.55$ and $z = 0.55$

27) $z = 2.18$ and $z = 3.45$

Find a z–score satisfying the given condition.

28) 74.9% of the total area is to the left of z.

29) 30.2% of the total area is to the right of z.

At one high school, girls can run the 100–yard dash in an average of 15.2 seconds with a standard deviation of 0.9 second. The times are very closely approximated by a normal curve. Find the percent of times that are:

30) At least 14.3 seconds

31) Between 17.0 and 17.9 seconds

Solve the problem.

32) If the life of a car engine, calculated in miles, is normally distributed, with a mean of 200,000 miles and a standard deviation of 14,000 miles, what should be the guarantee period if the company wants less than 2% of the engines to fail while under warranty?

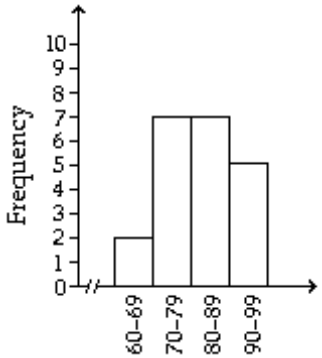
1)

Interval	Frequency
0 – 4	3
5 – 9	3
10 – 14	5
15 – 19	6
20 – 24	3

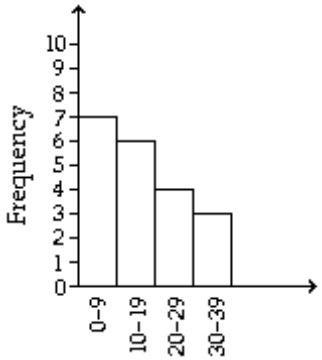
2)

Interval	Frequency
0 – 49	3
50 – 99	5
100 – 149	5
150 – 199	6
200 – 249	3
250 – 299	2

3)



4)



5) 71.3
6) 10.665
7) 23.2
8) 247.0
9) 22
10) 28.5
11) 27.7
12) 0.94
13) No mode
14) 33

15) 74
16) There is no mode.
17) 539
18) 4.8
19) At least $\frac{15}{16}$
20) No more than $\frac{1}{25}$
21) $113.00
22) 10.8
23) 44.95%
24) 49.82%
25) 0.2181
26) 0.4176
27) 0.0143
28) 0.67
29) 0.52
30) 84%
31) 2%
32) Less than 171,160 miles