Math 110, Chapter 9, Statistics Review

1. a. Group the following data as indicated and prepare a frequency distribution.

42	44	59	60	38
35	41	62	55	42
39	38	61	48	50
32	66	54	37	42

Start with the interval 30 – 36.

b. Construct a histogram.

c. What is the modal class?

2. Find the mean, median and mode for the following data.

Value	Frequency
5	7
7	8
9	6
11	14
13	19

3. a. Find the mean, median, mode, and midrange for the set of data. 21, 34, 17, 35, 16, 48, 32, 17.

b. Find the range and standard deviation for the following set of data.

72, 34, 21, 77, 56, 48, 66, 42

4. Find the mean and the standard deviation for the following grouped data.

Interval	Frequency
20 – 29	3
30 - 39	5
40 – 49	12
50 – 59	14
60 – 69	8

5. What does it mean if the standard deviation of a set of data is zero?
6. Which measure of central tendency must be an actual piece of the data?
7. The normal curve is symmetric about the vertical line through the _____.

8. The number of wolves observed in a particular national park is recent years is given below.

Year	Number of Wolves
1998	22
1999	17
2000	25
2001	18
2002	14
2003	12
2004	8
2005	12
2006	7

a. Find the mean number of wolves observed.
b. Which year had observations closest to the mean?
c. Find the standard deviation for the data.
d. In how many of these years is the number of wolves observed within one standard deviation of the mean? List the years.

9. Find the percent of data under a normal curve between the mean and -1.73 standard deviations from the mean.

10. Find the percent of the total area under the standard normal curve between $z = -.85$ and $z = 1.03$.

11. a. Find the z-score for $x = 42$ if the mean is 56 and standard deviation is 12.
b. Find a z-score such that 32% of the data is to the right of the z.
c. Find the z-score for x, if x is in the 82^{nd} percentile.

12. The average resident of a certain East Coast suburb spends 42 minutes per day commuting, with a standard deviation of 12 minutes. Assume a normal distribution of the data. Find the percent of all residents of this suburb who have the following commuting times.

a. At least 50 minutes per day.
b. No more than 35 minutes per day.
c. Between 32 and 40 minutes per day.
d. Between 38 and 60 minutes per day.
e. Find the shortest and longest commute for the middle 75% of the residents.

13. The state achievement test in English has a mean average of 74 with a standard deviation of 8 points. If Johnny has a score in the 93^{rd} percentile, what is Johnny's score?

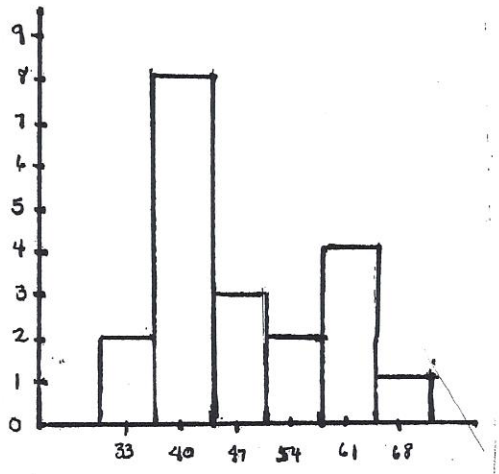
14. The average life of a certain light bulb is 750 hours with a standard deviation of 120 hours. If the school purchases 1550 of these bulbs, how many can be expected to last between 600 and 900 hours?

Answers

1. a.

Interval	Frequency
30-36	2
37-43	8
44-50	3
51-57	2
58-64	4
65-71	1

b.



c. modal class 37-43

2. mean 10.11, median 11, mode 13
3. a. mean 27.5, median 26.5, mode 17, midrange 32
   b. range 56, standard deviation 19.41
4. mean 49, standard deviation 11.62
5. All data are the same number.
6. mode
7. mean
8. a. 15
   b. 2002
   c. 6.06
   d. 5 years, 1999, 2001, 2002, 2003, 2005
9. 45.82%
10. 65.08%
11. a. -1.17
    b. .47
    c. .92
12. a. 25.14%
    b. 28.10%
    c. 22.92%
    d. 56.25%
    e. 28.2 minutes to 55.8 minutes
13. 85.84
14. 1222.64 bulbs