NAME **Homework 1** **Spring 2018**

Due date: Thursday February 1, 2018 **Sta 3381**

1. There are 20 students in a summer treadmill class at Sam Houston State Universitys gym. At the end of the week, every students speed was measured in miles/hour. 6.0, 5.7, 6.3, 6.0, 7.5, 5.3, 6.5, 5.0, 6.8, 7.4, 7.4, 7.9, 5.5, 6.2, 6.6, 7.3, 7.8, 5.5, 7.0, 6.6.

a. Find the sample median miles per hour

b. Find the sample mean miles per hour.

c. Find the sample mode miles per hour.

d. Find the sample midrange miles per hour.

2. The following data is the normal body temperatures (in degrees Fahrenheit) of males gathered by the Journal of the American Medical Association:

96.3 96.7 96.9 98.9 98.9 99.1 97.4 97.2 99.0 97.8.

a. Find the range of the data.

b. Find the standard deviation.

c. If one person has a body temperature of 103^0 F, is it unusual?

3. The following data show the number of Bigfoot sightings in 20 states in the United States (courtesy of BFRO, all numbers are as of 2015).

95 306 270 97 82 428 202 208 121 91 124 87 90 101 242 96 126 258 110 101.

a. Find the Median.

b. Find the Q_1 and Q_3.

c. Find interquartile.

d. Construct a box-plot.

e. Is there an outlier(s)?

4. According to the Texas Department of Criminal Justice, the number of employee injuries that occurred each month from June 2014 to June 2015 are: 463 528 499 441 469 349 407 416 431 454 403 435 544. Source: Texas Department of Criminal Justice.

a. Find the mean number of injuries.

b. Find the sample variance.

c. Find the standard deviation.

d. Create a boxplot for the above data.

5. Consider the following frequency table of the age of the U.S. presidents when they were first inaugurated.

Age	Frequency
41 - 46	5
47 - 52	12
53 - 58	16
59 - 64	7
65 - 70	3
Total	43

a. Find the mean.

b. Find the standard deviation.

6. The following table were the number of fatal crashes within the first 10 days of January, 2014 in Texas highways (Source: Texas Motor Vehicle Crash Statistics).

Age	Frequency
1-5	3
6 - 10	3
11 - 15	3
16 - 20	0
21 - 25	1

a. Find the relative frequencies for each age group of models.

b. Find the 65th percentile.

c. Find the median.

7. Suppose the distribution of the data has the mean of 300 and a standard deviation of 40. Assume that the distribution is bell-shaped.

a. Estimate the proportion of the data that falls between 220 and 380.

b. Estimate the proportion of the data above or equal to 420.

c. Find the intervals of data values that define the middle of 68% of the data.

8. According to police records, the average police officer works for 37 years and standard deviation is 5. Assuming the distribution is unknown.

a. Find the proportion police officer works that falls between 27 and 47.

b. Find the proportion police officer works that falls between 32 and 47.

9. The following measurements are obtained from members of the German olympic wrestling.

Anger (X)	7	4	3	20	11	6	13	17
Vigor (Y)	27	22	28	21	19	17	25	18

a. Draw a scatter plot.

b. Obtain a least squares line.

c. Predict the vigor score y when the anger score is 8.

10. For 2007, the CDC collected data on the percentage of adolescents who are clinically obese. Also tracked was the percentages of youth with neighborhood parks, community centers, and walking paths available to them for recreation. Let X represent the percent of students in grades 9-12 classified as obese, and Y represent the percent of youth with parks/playground areas, community centers, and sidewalks or walking paths available in the neighborhood.

x	y
13.7	41.1
11.0	57.1
11.2	51.4
13.2	51.8
12.8	65.6
15.4	35.4
10.9	63.2
12.4	52.5
17.7	30.0
12.7	41.4
9.9	59.8
14.3	41.4
16.8	37.0
11.5	46.2
14.5	57.2

a. Draw a scatter plot.

b. Find the line fitted by least squares.

c. Find the correlation between X and Y.