Module 1

1. Define the concept of sampling error. Be sure that your definition includes the concepts of statistic and parameter.
2. A research study comparing college alcohol use in the United States and Canada reports that more Canadian students drink but American students drink more. Is this study an example of an experiment why or why not?
3. For the following scores, find the value of each expression: a)∑X B) ∑X2 C) (∑X)2 D) ∑( X-1) where x = 6, 1, 3, 4, 2
4. Use summation notation to express each of the following calculations
5. Square each score, then add the squared values
6. Add the scores, then square the sum
7. Add two points to each score, then subtract 6 points from the total.

 Chapter 2

1. Sketch a histogram and a polygon showing the distribution of scores presented in the following table:

X = 5, 4,3,2,1

F = 1, 5,6,3,2

1. Schmidt (1994) conducted a series of experiments examining the effects of humor on memory. In one study, participants were shown a list of sentences of which half were humorous and half were nonhumorous. Schmidt then measured the number of each type of sentence recalled by each participant. Following are hypothetical results similar to those obtained by Schmidt.

 Number of Sentences recalled

 Humorous Nonhumorous

 4, 5, 2, 4 5, 2, 4, 2

 6, 7, 6, 6 2, 3, 1, 6

 2, 5, 4, 3 3, 2, 3, 3

 1, 3, 5, 5 4, 1, 5, 3

1. Identify the independent variable and the dependent variable for this experiment.
2. Sketch a polygon showing the data for the humorous sentences.
3. On the same graph, sketch a polygon for the nonhumorous sentences. (Use a solid line for one polygon and a dashed line for the other.)
4. Looking at your graph, does it appear that humor has an influence on memory for sentences?

Chapter 3

1. Explain what is meant by each of the following statements: a) the mean is the balance point of the distribution. B) The median is the midpoint of the distribution.
2. Under what circumstances is the mode the preferred measure of central tendency?
3. A sample of n= 20 scores has a mean of M = 6. If one new person with a score of X = 27 is added to the sample, what will be the value for the new mean?
4. Does it ever seem to you that the weather is nice during the work week, but lousy on the weekend? Cervany and Balling have confirmed that this is not your imagination; pollution accumulating during the work week most likely spoils the weekend weather for people on the Atlantic coast. Consider the following hypothetical data showing the daily amount of rainfall for 10 weeks during the summer.

**Weeks Rainfall Mon.-Fri, Rainfall on Weekends**

 1 1.2 1.5

 2 0.6 2.0

 3 0.0 1.8

 4 1.6 1.5

 5 0.8 2.2

 6 2.1 2.4

 7 0.2 0.8

 8 0.9 1.6

 9 1.1 1.2

 10 1.4 1.7

1. Calculate the average daily rainfall (the mean) during the week and the average daily rainfall for the weekends.
2. Based on the two means, does there appear to be a pattern to the data?

Chapter 4

1. A sample of n = 20 scores has a mean of M = 30. A) If the sample standard deviation is s = 10, would a score of X = 38 be considered an extreme value (out in the tail of the distribution)? B) If the sample standard deviation is s = 2 would a score of X = 38 be considered an extreme value (out in the tail of the distribution)?
2. A normal shaped population has a mean of µ = 80 and a standard deviation of $α=20$
3. If 10 points were added to every score in the population, what would be the new values for the population mean and the standard deviation?
4. If every score in the original population was multiplied by 2, what would be the new values for the population mean and the standard deviation?
5. For the following scores: 1, 0, 4, 1, 1, 5
6. Calculate the mean (Note that the value of the mean does not depend on whether the set of scores is considered to be a sample or a population.)
7. Find the deviation for each score, and check that the deviations sum to zero.
8. Square each deviation, and compare SS. (Again, note that the value of SS is independent of whether the set of scores is a sample or a population.)
9. Calculate SS variance and standard deviation for the following sample of n = 6 scores: 11, 0, 8, 2, 4, 5. (Note the definitional formula for SS works well with these scores.)
10. Calculate SS variance and standard deviation for the following sample of n= 4 scores: 3, 1, 1, 1. (Note the computational formula works best with these scores.

Thank you in advance and please show all work so I can figure these problems out.