1. What is measured by each of the following:
   Sum of Squares (SS) = the sum of squared deviation scores
   Variance = the mean squared deviation
   Standard Deviation = the square root of the variance. It provides a measure of the standard distance from the mean.

2. Calculate the standard deviation for the following population of scores:

   8 5 3 7 5 6 4 7 2 6 5 3
   6 4 5 7 8 6 5 6

   $\sigma = 1.59$

3. Calculate the mean, SS, variance, and standard deviation for the following sample:

   6 8 4 3 5 7 4 3

   The sample mean is 5, the SS is 24, the variance is 3.43, and the standard deviation is 1.85.

4. For the following data:

   1 4 3 6 2 7 18 3 7 2 4 3

   Compute the mean, standard deviation, median, and semi-quartile range. Then explain which measures of central tendency and variability provide a better description of the sample.

   The mean is 5, and the standard deviation is 4.53. The median is 3.5. Most of the scores are clustered around 3 or 4 so the median provides a better description, while the outlier (18) distorts the mean and standard deviation.

5. What happens to a variance or standard deviation when a constant is added? What if the variance and standard deviation is multiplied by a constant.

   Variability stays the same when a constant is added but multiplying by a constant changes the variability.

6. Calculate the standard deviation for the following three sample data sets:

   a. 13 21 27 31 35 24 28 32 17 20 $sd = 7.05$
   b. 100 115 112 113 95 87 90 104 107 98 $sd = 9.76$
   c. 55 54 59 55 52 51 57 49 61 57 $sd = 3.68$

   These answers may vary due to rounding error.