❶ <u>Why</u> is the formula for **sample** variance different from the formula for **population** variance?

❷ For sample of N = 8 scores, calculate the standard deviation using the **definitional formula**. Show work.

3, 3, 5, 1, 4, 3, 2, 3

❸ In your own words, define *standard deviation* (use the words "average" and "mean"). Explain how *variance* is different from standard deviation.

Why would I.Q. be negatively correlated with heart disease?

❹ For sample of n = 12 scores, calculate the standard deviation using the **computational formula**. Show work.

1, 4, 3, 6, 2 , 7, 8, 3, 7, 2, 4, 3

❺ These data are from *sample* of 10 heart-attack patients. Number of days for hospital stay listed. Show work.

9, 13, 9, 7, 12, 17, 10, 10, 11, 14

- Compute the sample Mean
- Compute the Range (high – low value)
- Compute the sample standard deviation (s)

❻ Suppose that the hospital accounting department is dishonest and wants extra insurance money. They add one day's stay to each person from #5. What would be the new values for the sample (show your work):

- Mean
- Range
- Standard deviation

❼ A sample of N = 20 scores has a mean of M = 30.
- ☼ Draw a curve with s = 10. Mark the location of a score of X = 38.
- ☼ Draw another curve with s = 2. Mark the location of a score of X = 38.
- ☼ In which distribution is the score farthest from the mean? Why?

❽ A recent study reports that regular exercise (as measured by a pedometer) in older adults can impact symptoms of depression (higher score=greater depression). The following are data obtained from the two samples.

Regular Exercise	No Regular Exercise
1	5
3	4
4	6
3	3
5	5
2	7
3	6
4	6

- Calculate the mean and standard deviation for each group of scores. If you don't want to calculate standard deviation by hand, **use the statistical function on your calculator** to make short work of it.

- Based on your above answers, articulate (clearly and completely) your conclusions for this study.

❾ Annual rainfall (inches) in Phoenix was measured for the past 21 years. The descriptive statistics are reported below.

Statistics		
Annual		
N	Valid	21
	Missing	0
Mean		4.7
Median		5
Mode		6
Std. Deviation		2
Range		5
Percentiles	25	2.5
	50	5
	75	6

- Sketch the distribution curve, noting mean, median, mode, and standard deviation.

Adapted from K. Taylor, 2010