

1 Why is the formula for **sample** variance different from the formula for **population** variance?

For sample of $N = 8$ scores, calculate the standard deviation using the definitional formula. Show work.
3, 3, 5, 1, 4, 3, 2, 3

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

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

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



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

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

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

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

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

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

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

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.

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

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