

Measures of Central Tendency and Variability

1. One semester, a statistics professor gave five exams to the class. In an effort to get the students to apply what they have learned in their statistics classes they are told that the final course grade will be based on the central tendency of their choice. Below are the scores for three of the students. Which method would you suggest that each one choose (assuming that you want them all to get high grades)?

	Examination				
	1	2	3	4	5
Andrew	35	40	65	90	90
Katherine	10	50	65	80	85
Shannon	56	56	67	78	98

2. Some researchers in understanding g-loads on humans are interested in methods that can be used to assist pilots withstand g-load. To study this in a controlled environment, they need to develop a standardized way to safely measure g-loads in the research participants. One way that they can do this is to have participants experience a g-load and give them a simple calculation to perform. This was repeated three times for each participant and the results are shown in the table below. Calculate the mean, mode and median for each.

	Time in Seconds (s)											
Attempt 1	35	39	38	30	37	43	30	38	41	52	25	44
Attempt 2	20	28	26	29	60	21	37	30	28	57	29	25
Attempt 3	45	23	57	50	47	52	20	53	50	30	52	60

Measures of Variance and Standard Deviation

3. As part of an assessment for navigation, a professor has his students take a written test. He teaches two sections of the class. The scores from the students in each section appear below. Compute the variance and standard deviations for test 1 and test 2 shown below in the table. What do the results say about the relative homogeneity of the two classes? Assume these are samples of a much larger population.

	Test Score							
Test 1	110	125	78	87	63	135	90	51
Test 2	100	97	108	101	86	91	95	100

4. Below in the table is the data from Set 1 of training airport security guards. In this study, participants were to identify how many security risks they could identify. The researcher recorded how many they identified. Assume this data reflects a sample.
- Calculate the standard deviation for this set of scores.
 - Explain what the standard deviation means in this context. (Explain it as though you are telling someone that knows nothing about statistics — *i.e.*, make it sound simple.)

	Recorded Risks											
Set 1	35	39	38	30	37	43	30	38	41	52	25	44