

Sample responses to descriptive questions on Exam #2

The following are student responses to a few problems on Exam #2. Each of these is an example of a reasonable response.

- 2(e) Suppose the value of 55% mentioned in the first paragraph had instead been 38%. Explain why the difference between 38% and 36% might not be *statistically significant*.

If you did the same [study] with a different group of subjects it could easily be a 2% [or 0% or -2%] difference.”

[The difference between] 38% and 36% could easily just be the result of variances that occur within samples of a population so the two statistics don't really convincingly prove that a difference exists between the two [parameter values for the entire populations].

- 2(a) Describe a matched pairs design for this experiment.

In a matched pairs design, subjects [can be compared] to themselves. For this experiment, I would randomly allocate half of the students to first being kept awake 24 hours before the test and the rest to first getting a full night's sleep before the test. After a few days (I would have to allow for a recovery period), the group that went without sleep first would then be tested after sleeping a full night and the group that slept first would be sleep deprived.

- 3(b) Describe a potential factor in this method of sampling that might bias your results on the question you are studying.

If one of the two roommates spends more time off campus, it is more likely that they will be gone when you knock on the door. Therefore you will either get their roommate, who spends more time on campus, or no one will answer the door.