MAT 223, Exam #1, Spring 2017 Name KEY

Instructions: Show all work. Use exact answers unless specifically asked to round. Explain thoroughly using complete sentences. If you use your calculator to perform statistical tasks, say which command/operations you are using and what you entered into your calculator, and what you got back to show work. If you do not show work and the answer is incorrect, no credit will be awarded.

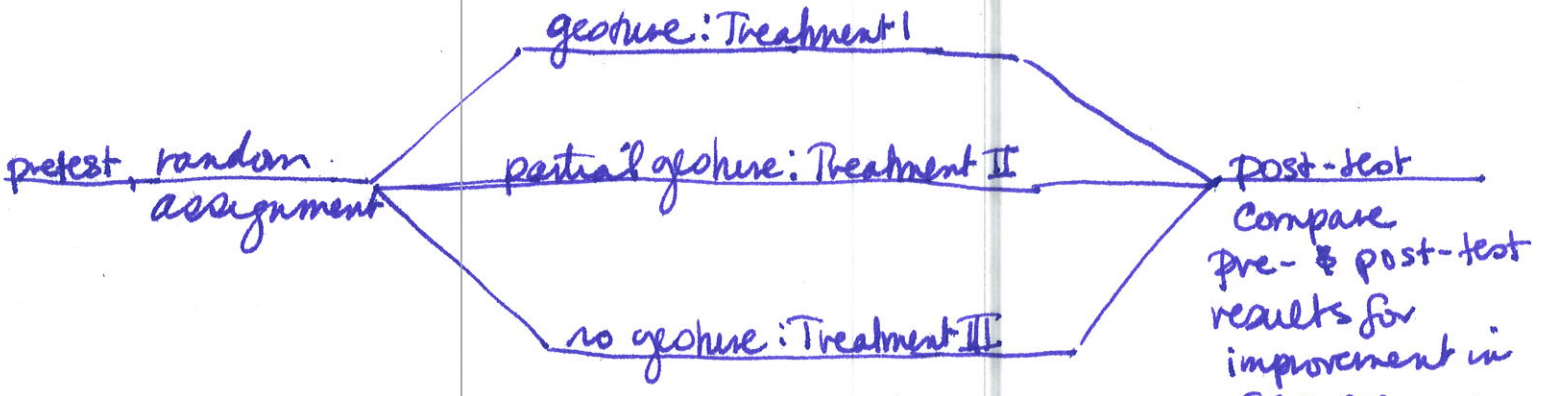
1. What is a meta-analysis? Give an example. (5 points)

a meta-analysis is an analysis of a bunch of past analyses on the same subject to look at what the state of the field is, what the consensus is, if there is one and if there are any gaps or questions to spur new research

2. A state decides to study teaching effectiveness in public schools. The state randomly selects 50 public schools and then surveys every teacher at each of those 50 schools. What kind of sampling method is this? Explain your reasoning. (5 points)

Cluster sampling
each school is a "cluster" and then everyone in the randomly selected cluster is selected.

3. A study was conducted to test whether gestures can enhance math performance. Students were divided into demographic groups and given a pre-test to assess their prior knowledge. The groups were then randomly divided into three groups for the test conditions of the lesson: gesture, no gesture, and partial gesture. After the lesson, the students were given a post-test to assess their learning. Pre-test and post-test scores were compared. Diagram the experiment described. Be sure your diagram clearly states all treatment groups, and how the groups were determined, and what assessments were made. (10 points)



it may be that treatments were also block designed within each treatment carrying forward the ethnic groups, however, this is unclear and should be managed into it by comparing individual pre- & post results

4. Why is nonadherence a problem in long-term studies? What is the effect of nonadherence on a study? Give an example using a (hypothetical) education study. (5 points)

nonadherence can affect the results of a study. either by contaminating the data (subjects don't admit to not following the protocal) or by dropping out and reducing study #'s. You may be testing study methods but if a student refuses to use the method (or switches schools) you will not get good data.

5. A stem-and-leaf plot is shown below. Note that the stems are split into groups of 2. Use this data to construct a dot plot. (10 points)

```
14 : 2
14 : 555
14 : 67777
14 : 889
15 : 000000111111
15 : 22222222222333333333333333
15 : 44444444444555555555555555555
15 : 66666666666666666667777777777777777777
15 : 88888888888888888888888888888999999999999999999
16 : 00000000000000000001111111111111111111
16 : 22222222222222222233333333333333333333333333333
16 : 44444444444444444555555555555555555
16 : 66666666666777777
16 : 888888999999999
17 : 000000000111
17 : 333
17 : 4
17 : 67
17 : 88
```