Homework #4

Due Nov. 21

The SPSS (& .dat) files *two\_way* contains three variables:

SEX coded 1 (males) and 2 (females)

DRUG coded 1 through 5 for 5 different drugs

SCORE the dependent variable for response to the drug

1. Report the means and standard deviations on SCORE in a table for:

SEX (marginal means)

DRUG (marginal means)

SEX × DRUG (cell means)

2. Plot the cell means with DRUG as the x-axis and SEX as the y-axis

3. Perform a 2-way ANOVA to test the effects of SEX and DRUG as well as the interaction between SEX and DRUG. You need to do this by hands based on the marginal means and cell means obtained from question 1. Please show your work on calculations. Note that SStotal = 2667.79.

4. Based on your calculations above, report the Omnibus ANOVA summary Table.

5. If the interaction is significant, do simple effect analysis where sex is contrasted for each drug. That is, compare males to females on Drug 1, Drug 2, etc (by hands; show your work on calculations).

6. Now use the R program to conduct the 2-way ANOVA to confirm the results from your hand calculations in question 3. Paste the necessary ***syntax*** and relevant ***output*** here.

7. Use the R program to conduct the simple effect analysis as in question 5. Paste the necessary ***syntax*** and relevant ***output*** here.

8. Report and interpret your ANOVA results in APA style (note: in this case, you could interpret the main effects since their directions are the same).