Please turn in the following problems:

1. If https://bcourses.berkeley.edu/equation_images/X_1%252C%2520X_2%252C%2520%255Cldots%252C%2520X_n%2520 are i.i.d., show that https://bcourses.berkeley.edu/equation_images/%255Coverline%257BX%257D is uncorrelated with https://bcourses.berkeley.edu/equation_images/X_i%2520-%255Coverline%257BX%257D for each https://bcourses.berkeley.edu/equation_images/i.

2. Problem 2 from Chapter 12

3. Problem 22 from Chapter 12. Plot the confidence intervals from Tukey's HSD.

4. Problem 28 from Chapter 12.  Do it step by step, using R to compute the means that you need, and writing down the degrees of freedom for the numerator and denominator. Compute the F-statistic and find the p-value using the table, and compare it to what you find using R. Do **not** just use R's ANOVA function. Do a post-hoc analysis, if needed.