ANSC/TPSS 603
Assignment 5 - Factorials

In an experiment investigating the effects of vitamin B12 (B) and antibiotics (A) on the average daily gain (ADG) of pigs, a 2^2 design was used. The two levels of B12 were 0 and 5 mg, and the two levels of antibiotic were 0 and 40 mg. The experiment was installed in a completely randomized design with 3 replicates per treatment. (From Snedecor and Cochran.)

The data are:

Antibiotics	0		40 mg	
B12	0	5 mg	0	5 mg
	1.30	1.26	1.05	1.52
	1.19	1.21	1.00	1.56
	1.08	1.19	1.05	1.55
Totals	3.57	3.66	3.10	4.63

1. Complete the ANOVA for this experiment. Summarize the significance of the effects.

2. Write out an orthogonal contrast for the levels of B12, calculate the SS and compare to the answer in 1.

3. Graph the treatment means with antibiotic on the x-axis, ADG on the y-axis, and a line (series) for each of the two levels of B12. Explain the results.

4. What would you recommend to a farmer that was planning to add antibiotics to the feed of newly weaned pigs?