

Read each question carefully and answer it completely. Once again, think of a point as a minute, so do not spend too much (or too little) time on any answer. Keep your eyes focused on your own exam.

1. In a study of hyperactivity among elementary school boys, nine groups of participants were randomly selected from a school population of ADHD, 7-year-old boys. (ADHD is Attention Deficits with Hyperactivity, and left untreated, it can prevent a child from attending to incoming learning stimuli and may also create major disruptions in the classroom.) The researcher wanted to study the classroom effects on the activity levels of the participants. Both the drug Ritalin as well as a behavior modification program served as factors. The drug was varied from 20 mg of Ritalin to 10 mg of Ritalin to no dosage (in the form of a placebo). [In the table below, for Drug, 1 = 20 mg, 2 = 10 mg, and 3 = placebo.] The behavior modification program consisted of giving the child ten tokens to start the day and then taking away a token for each hyperactive infraction. The tokens that were saved could then be exchanged for some valued prize. The behavior mod program was varied from no program, to the program being used every other day, to the program being in force every day. [In the table below, for Treatment, 1 = No Beh Mod, 2 = Beh Mod Every Other Day, and 3 = Beh Mod Every Day.] After 4 weeks, all the children were evaluated for hyperactivity and were assigned scale scores ranging from a possible low of 0 (no indication of hyperactivity) to a high of 40 (extreme hyperactivity). Complete the source table below and interpret the data from this study as completely as you can. [25 points]

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Treatment (A)		1283.			.0001
Drug (B)		657.			.0001
AB		128.			.2746
Error		1317.			

The AB Incidence table on Y_1 : Hyperactivity Score

		Drug:	level 1	level 2	level 3	Totals:
Treatment	level 1		7	7	7	21
			16.429	22	29.143	22.524
	level 2		7	7	7	21
			17.143	19	22.429	19.524
	level 3		7	7	7	21
			8.714	12.286	14.429	11.81
	Totals:		21	21	21	63
			14.095	17.762	22	17.952

2. A researcher is interested in whether the phonics method of teaching reading is more or less effective than the sight method, depending on what grade the child is in. Twenty children were randomly selected from each of three grades: kindergarten (level 1), first grade (level 2), and second grade (level 3). Achievement was measured in terms of reading comprehension, with higher scores indicating more comprehension. Within each grade, 10 children were assigned to each of the two methods of teaching reading, Phonics (level 1) or Sight (level 2). Analyze the results of this study as completely as you can. [25 points]

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Method (A)		1.6			.708
Grade (B)		5113.7			.0001
AB		872.1			.0001
Error		634.8			

The AB Incidence table on Y_1 : Reading Score

		Grade:	level 1	level 2	level 3	Totals:
Method	level 1		10	10	10	30
			17.8	30.2	47	31.667
	level 2		10	10	10	30
			21.4	37.8	36.8	32
Totals:			20	20	20	60
			19.6	34	41.9	31.833

4. In this (paunchy?) midsection of the course, we've been discussing confounds that may arise in the design of experiments. List 4 different confounds (your favorite ones?) with a brief definition and example of each. [15 pts]