The data below are from a study designed to investigate how study time differs as a function of college major (humanities versus natural science) and previous college experience (some versus none):

	Some college	No college
Humanities	12,11,10	8,7,7
Natural science	12,10,9	10,9,8

1. Construct a plot of the condition means implied by this experimental design. Plot major on the horizontal axis and separate lines for each level of college experience.

2. Perform a factorial analysis of variance on these data. Report p-values for each main effect and interaction.

3. Perform a Bayesian analysis of variance on these data. Compute and report inclusion Bayes factors for each main effect and the interaction, being sure to report the prior and posterior odds for each.

4. Interpret your results in the context of the problem.

Coren and Halpern (1991) reviewed data on age-at-death as a function of handedness (left versus right) and gender (female versus male):

	Female	Male
Left-handed	76,74,69	67,61,58
Right-handed	82,78,74	76,72,68

1. Construct a plot of the condition means implied by this experimental design. Plot handednesss on the horizontal axis and separate lines for each level of gender.

2. Perform a factorial analysis of variance on these data. Report p-values for each main effect and interaction.

3. Perform a Bayesian analysis of variance on these data. Compute and report inclusion Bayes factors for each main effect and the interaction, being sure to report the prior and posterior odds for each.

4. Interpret your results in the context of the problem.

Hollon et al. (2002) compared three types of therapy: (a) psychodynamic therapy, which uses free association and dream analysis to explore unconscious conflicts from childhood; (b) interpersonal therapy, which progresses through a three-stage treatment that alters the patient's response to recent life events; and (c) cognitive-behavioral therapy, which focuses on changing the client's thought and behavior patterns. Improvement scores for each type of therapy (also split by gender) are below:

	Female	Male
Psychodynamic	22,42,30,49,15,34	37,20,56,39,48,28
Interpersonal	41,57,75,68,48,59	48,52,41,67,33,59
Cog-Behav	33,67,41,59,49,51	36,56,44,72,52,64

1. Construct a plot of the condition means implied by this experimental design. Plot therapy type on the horizontal axis and separate lines for each level of gender.

2. Perform a factorial analysis of variance on these data. Report p-values for each main effect and interaction.

3. Perform a Bayesian analysis of variance on these data. Compute and report inclusion Bayes factors for each main effect and the interaction, being sure to report the prior and posterior odds for each.

4. Interpret your results in the context of the problem.