1) What was the dependent variable in this study? _____________________________________(2 pts)

2) What were the independent variables in this study? ______________________________________(2 pts)

______________________________________ (2 pts)
3) How would you describe the design of this study? ________________________________ (2 pts)

4) Was the design balanced? (circle one) yes / no / can't tell from info given (2 pts)

5) The authors claim that the pooled standard deviation was $S = 30.47$. Was this correct? Show the calculation. (2 pts)

6) The authors claim that $R^2 = 62.65\%$ of the total variability was explained by the three effects in this analysis. Was this correct? Show the calculation. (2 pts)

7) Which of the effects were statistically significant? Indicate below which effects were significant and give the relevant p-values. (3 pts)
   - BodyMass main effect: (circle one) significant / not significant $p =$ _________
   - Label main effect: (circle one) significant / not significant $p =$ _________
   - BodyMass x Label interaction: (circle one) significant / not significant $p =$ _________

8) Describe the BodyMass main effect. HINT: this will involve calculating the relevant marginal means. (3 pts)

9) Describe the Label main effect. HINT: this will involve calculating the relevant marginal means. (3 pts)

10) Describe the interaction effect. (5 pts)
11) Calculate an eta-squared for each of the effects separately. Show the calculation.

   BodyMass main effect: \( \eta^2 = \) ________________________________ (2 pts)

   Label main effect: \( \eta^2 = \) ________________________________ (2 pts)

   Interaction effect: \( \eta^2 = \) ________________________________ (2 pts)

12) Notice that there are no post hoc tests given. Why not? (3 pts)

13) It appears to me that the homogeneity of variance assumption has been violated in this analysis. Why do I say that? Why shouldn't I worry too much about it? (3 pts)

----------------------------------------------------------------------------------------------------------------------------

AUDIT stands for Alcohol Use Disorders Identification Test. Scores on this test greater than 8 supposedly indicate the possible existence of "problem drinking." Kellie Dunlap used the AUDIT as the dependent measure in her Psyc 497 project (Fall 2008). 70 CCU students were scored on the test. Other information she collected from her subjects was gender (sex) and home state (south = yes if from south of the Mason-Dixon line, otherwise no.).

Here are the cell summary statistics.

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Here is a valid ANOVA. (Significance stars, if any, have been erased.)

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<th>Df</th>
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<td>2420.7</td>
<td>36.68</td>
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</tbody>
</table>
Answer the following questions based on this analysis.

14) What was the dependent variable in this study? __________________________ (2 pts)

15) What were the independent variables in this study? ______________________ (2 pts)

16) How would you describe the design of this study? ________________________ (2 pts)

17) Was the design balanced? (circle one) yes / no / can't tell from info given (2 pts)

18) Which of the effects were statistically significant? Indicate below which effects were significant and give the relevant p-values. (3 pts)

   Sex main effect: (circle one) significant / not significant   p = __________

   South main effect: (circle one) significant / not significant   p = __________

   Sex x South interaction: (circle one) significant / not significant   p = __________

19) What are the three problems that arise when a factorial design is unbalanced? (3 pts)

   a) ____________________________

   b) ____________________________

   c) ____________________________

20) Here is an interaction plot. Circle all of the simple effects on this graph. (4 pts)