1. Many high school English teachers no longer use red ink to grade papers. The idea is that students have a negative reaction to seeing red all over their papers. Based on this idea, an English teacher wanted to investigate whether the use of green, purple, or red ink leads to performance changes by the students.

   a. The first thing the researcher (the English teacher) does is send out questionnaires to current teachers at her school to ask them what color pen they currently use to grade. The researcher then examined the grade distributions in these classes to see whether there was a difference across the classes surveyed.

      i. What is the population in the question above?

      ii. What is the sample in the question above?

      iii. Is this study an example of correlational research or experimental research? Why?
b. Following that, the researcher (the English teacher) asks six of her colleagues for their help the next semester. She has two of the colleagues use red ink to grade, two of them use green ink to grade and two of them use purple ink to grade. Then she collects the grade distribution for the six classes to compare. She tried to recruit an equal number of male and female teachers for her study, but her school only has two male teachers in the English department. They both used red ink to grade in the study.

i. How is the second part of her study (presented in b) different than what she did at first (presented in a)? HINT: I am looking for use of certain terminology here.

ii. What is the independent variable?

iii. What are the levels of the independent variable?

iv. Is the independent variable nominal, ordinal, ratio, or interval?

v. What is the dependent variable?
vi. How should the teacher decide who should use which color pen?

vii. Is this study conducted within subjects or between subjects? Why?

viii. Are there any confounding variables in this study? Explain your answer.

2. Amy decides to examine the factors that affect academic success. In her experiment, she links amount of sleep and parental support to college graduation rates.
   a. What is the operational definition of academic success used in this study?

3. What is the main reason why researchers interested in studying race don’t conduct true experiments?
4. This is an excerpt from an article on learning styles (ie. Are you a visual learner or auditory learner?):

“Some learners already know a lot about the way they learn, and need no help from any inventory or questionnaire. For others, doing the VARK questionnaire again and again over time is a worthwhile exercise, even though – maybe because – the scores may vary. VARK works when people find it useful.”

a. Apply the terms reliability and validity to what this article is saying about the VARK questionnaire.

5. Graph the following data in whatever form you deem appropriate (use the graph paper):

a. A researcher studies memory with a test of 11 words. These are the number of words remembered from each subject: 10, 10, 10, 10, 11, 10, 10, 9, 9, 8, 6, 10, 9, 11, 10
   i. Is the graph positively skewed, negatively skewed, or symmetrical? Is there a ceiling effect, a floor effect or neither?

b. At Rio Hondo College, students typically define their goal as either transfer or vocational/career-technical education. Approximately 40% of students claim to be transfer focused, 50% claim to be vocational focused, and the remaining 10% are undecided.

6. Put the following exam scores into a table (whichever type you think is best- use the graph paper): 84, 90, 95, 78, 64, 75, 77, 79, 50, 55, 36, 24, 12, 98, 97, 87, 86