Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 2: Research Methods**

Bert is trying to compare the effects of Tylenol and Advil on headache reduction. He plans to design an experiment where thirty people with headaches are randomly assigned to three groups. He will give the first group 25mg of Advil, the second group 25mg of Tylenol, and the third group 25mg of… sugar. All three pills are designed to look and taste exactly the same and the participants are not told which pill they are getting. Before the experiment, the participants rated their headache at an “8” average. After the experiment the participants rated their headache at a 5.4 (Tylenol) – 5.2 (Advil) – 7.2 (Placebo). He then calculated the significance scores between Tylenol and Advil and found that p=.45 – However, when comparing Advil to the placebo, he found p=.02, and when comparing Tylenol to the placebo, he found p=.03

1. What is the independent variable?
2. What is the dependent variable?
3. What is the control group?
4. What is the experimental group(s)?
5. Is this test single blind, double blind, or neither?
6. Are there any possible confounds in the experiment? (If yes, tell me what they are)
7. Was his finding statistically significant? Explain your answer.

I want to find out the effect of word order on memorization. I take the students in my class and put all of the seniors in one group and the juniors in another group. I give both groups a list of ten words – carrot, apple, banana, squash, pear, orange, grape, lemon, avocado, tomato. In one list, the word “carrot” is the first word in the list, and in one group, the word “carrot” is the last word in the list. After giving them fifteen seconds to look at the list, I have them write down as many words that they can remember. I then see if they remembered the word “carrot” or not – to see if it is easier to remember in the front of the list or the back. When I analyzed the significance value, I got p=.13

Front: 20 – Back: 17

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7. Was his finding statistically significant? Explain your answer.

Given the following number set, answer the following questions:

1, 5, 3, 5, 20

1. Mean 16. Median
2. Mode 18. Range

I analyzed the Unit 1 AP Psychology test scores, and they had a mean of 76 and a standard deviation of 12.

1. What percentage of students received a score between 76 and 88?
2. What percentage of students received a score lower than 76?
3. What percentage of students received a score between 64 and 88?

Answer the following questions about correlation coefficients

1. Height / Age
   1. Positive correlation
   2. Zero correlation
   3. Negative correlation
   4. N/A
2. Time spent studying / Test score
   1. Positive correlation
   2. Zero correlation
   3. Negative Correlation
   4. N/A
3. Number of pets / Hair length
   1. Positive Correlation
   2. Zero Correlation
   3. Negative Correlation
   4. N/A
4. Number of alcoholic beverages consumed / Reaction time
   1. Positive Correlation
   2. Zero Correlation
   3. Negative Correlation
   4. N/A
5. Tom finds a correlation between student time reading their textbook and their score on the final exam. What can we conclude from this correlation
   1. Reading of the textbook causes a higher score
   2. Receiving a higher score causes you to read your textbook more
   3. Interest in the class causes you to read your textbook more and do better on the final exam
   4. We cannot imply causation from a correlation
6. Which of the following is a *random* sample
   1. Going into the lunchroom and picking ten people that you don’t know
   2. Picking all of Mr. Grover’s classroom
   3. Putting all names of McGuinness students into a hat and selecting twenty students
   4. Taking the first ten people that walk into the building
7. Which measure of central tendency is highly affected by outliers (positive or negative skew in distribution)
   1. Mean
   2. Median
   3. Mode
   4. Standard Deviation
8. Which of the following has the smallest standard deviation
   1. 85, 82, 88, 84
   2. 1003, 1003, 1002, 1004
   3. 10, 0, -20, 5
   4. -500, -400, -200, 0
9. What does the term “significance” mean in psychological research?
   1. The mathematical likelihood that what you found was due to chance
   2. The numerical difference between what you are measuring
   3. How important your findings are
   4. A mathematical compilation of all research done on a particular subject
10. After the Moore tornadoes, the media seemed to say that all schools in Oklahoma should have had in-group tornado shelters for all students, and that it was irresponsible for us not to have them. This type of thinking illustrates:
    1. Overconfidence
    2. Hindsight Bias
    3. Intuition
    4. Illusory Correlation
11. Mr. Hamilton (the new Cross Country coach) wants to know if drinking Gatorade before a race affects running speed during the race. Use the following to test this claim: (A) Survey (B) Naturalistic Observation (C) Experiment (D) Correlation (E) Case Study