

PSYC 240: Statistics in Psychology
ASSIGNMENT 1: MATHEMATICS REVIEW & FREQUENCIES

Purpose: A class in statistics necessarily involves some basic arithmetic and algebra. This assignment is designed to give you practice in thinking about and calculating the type of math that will be used in this class. Additionally, measurement and simple frequency distributions are the cornerstones of statistics. The second part of the assignment is designed to give you practice in thinking about measurement. Similarly, you will practice calculating basic frequency distribution elements. Note that this assignment will be graded according to the rubric given in class.

Problem-Based Questions (30 points each): Please show all work and clearly identify the final answer for each of the following questions.

1. Calculate the correct answer for each of the following. Be sure to follow the correct order of operations.
 - a. $(2-3)^2 + (0-3)^2 + (6-3)^2 + (3-3)^2 + (9-3)^2 + (2-3)^2 + (0-3)^2 + (2-3)^2$
 - b. $2\sqrt{16+9+25}$
 - c. $\sqrt{5.5^2 + 3.5^2}$
2. For this question, consider an equation among several unknowns: $Z = (X - M) / S$. For each of the following, calculate the requested unknown given the indicated numbers. Be sure to follow the correct order of operations.
 - a. $X = -7, M = 1, S = 2, Z = ?$
 - b. $X = 25, M = 10, Z = 2.5, S = ?$
 - c. $M = 732, Z = -1.25, S = 40, X = ?$
3. Answer the questions about the following study.

Study: A researcher was interested in comparing the amount of statistics anxiety for college students over at two time points during a semester. A random sample of 7 students rated their own levels of statistics anxiety on a 9-Point Scale (1 = not anxious, 9 = very anxious). The results are as follows:

Time 1 (First Week): 6, 7, 9, 3, 5, 6, 2

Time 2 (Final Week): 3, 4, 9, 1, 5, 6, 3

For the study described above, use SPSS to obtain a frequency distribution for the first week (Time 1) anxiety was measured. After printing the output, do each of the following:

On your SPSS output, calculate “by hand” the median using the information given to you in the frequency distribution.

Write a sentence or two that effectively communicates your basic statistical results and their interpretations.

Essay (10 points):

4. In a single essay, describe the research design of the study described in the previous section.
 - a. Indicate which research strategy (experimental or nonexperimental) was used;
 - b. Indicate whether the studies used between-subjects or within-subjects designs;
 - c. Identify the factor in the study and its level of measurement; [If a study is an experiment, identify the independent variable. If it is not an experiment, indicate the predictor variable
 - d. Indicate the dependent (or outcome) variable and its level of measurement.