

Z-Scores Homework – 40 points

Please read the following instructions carefully before completing this assignment.

You may complete this assignment in pairs. (Remember, a “pair” consists of exactly two people.) Be sure to write both of your names, otherwise I won’t grade it. Please staple all pages together.

For **math problems**, please show ALL work on a separate page. Be sure to write neatly; it will be harder for me to award partial credit if I can’t follow what you did. *Use my examples as a guide.*

For **SPSS problems**, answers must be typed in a legible font and double-spaced. Be sure to proof-read, and use proper APA format with respect to decimal places, etc. *Again, use my examples as a guide.*

1) Short Answer (6 points)

What does the *sign* of a Z-score tell us? What does the *size* of a Z-score tell us?

2) Math Problem (18 points)

The average college student sleeps for six hours per night ($SD = 1.5$ hours). For each of these five students, find their Z-score. Then, sketch a normal distribution, shade the area to the *right* of their Z-score, and find the percentage of students who slept more than they did.

Amy	Leonard	Sheldon	Penny	Howard
5 hours	3 hours	8 hours	10 hours	6.5 hours

3) Math Problem (10 points)

Trey and Mike are both taking statistics this semester, but they are taking it with two different professors. On their final exams, Trey got a 93% and Mike got an 88%. In Trey’s class, the mean score was an 85% ($SD = 4\%$). In Mike’s class, the mean score was 82% ($SD = 2.5\%$).

- a) Compute Z-scores for both Trey and Mike. Which person got the better exam grade, compared to the other people in their class? (4 points)
- b) What grade would Trey have needed to be in the top 10% of his class? What grade would Mike have needed to be in the top 10% of his class? (6 points)

4) SPSS Problem (6 points) -- Use the datafile **Census.sav**.

a) Use SPSS to calculate Z-scores for each participant's height. What is the range of Z-scores for height in our sample? (2 points)

b) Using your Z distribution table, what percentage of people is taller than Participant #267? What percentage of people is shorter than Participant #316? (4 points)