**Statistics for Psychology - PSYCH-UH 1004Q**

**Homework #3 – Answer Key**

15 points

(The homework assignments will never require you to use R unless the problem explicitly says “use this R code”. For other problems, can use R if you find it useful, they should be completed easily by hand.)

1. a. If alpha were set to the unusual value of .08, what would be the magnitude of the critical right tail *z-*value for a one-tailed test? (1 point)

1. If alpha were set to the unusual value of .08, what would be the *z*-values for a two-tailed test? (1 point)
2. Find the one-tailed critical *z*-values for α = .03. (1 point)
3. Find the two-tailed critical *z*-values for α = .03. (1 point)
4. Find the one-tailed z values for α =.007. (1 point)
5. Find the two-tailed z values for α =.007. (1 point)
6. a. As alpha is made smaller (e.g., .01 instead of .05), what happens to the size of the critical *z*? (1 point)

b. As the calculated *z* gets larger, what happens to the corresponding p value? (1 point)

1. Suppose that the level of anxiety of the full population of people of a town was previously measured such that the population means (μ) was 50 and the population standard deviation (σ) was 10. After an earthquake hits their town, a random sample of the townspeople were asked to fill out a new survey to measure their new anxiety levels to see if the earthquake impacted the town’s anxiety. This yields the following anxiety scores: 72, 59, 54, 56, 48, 52, 57, 51, 64, 67.

Test the null hypothesis that the earthquake did not increase the level of anxiety in that town (use alpha = .05).

1. State the null hypothesis in English words. (1 point)
2. Show us the formula for the statistical test, with the correct values plugged into it. (3 points)
3. Report the *p*-value of the statistic that you just calculated rounded to 3 decimal places. (1 point)
4. Make a decision: do you reject the null hypothesis or fail to reject the null hypothesis? (1 point)
5. Considering your decision above, which kind of error (Type I or Type II) could you be making? (1 point)