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

**Homework #2 – Answer Key**

32 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 veterinarian is interested in the life span of golden retrievers. She recorded the age at death (in years) of the retrievers treated in her clinic. The ages were 12, 9, 11, 10, 8, 14, 12, 1, 9, 12.

a. Calculate the mean, median, and mode for age at death. (3 points)

b. After examining her records, the veterinarian determined that the dog that had died at 1 year was killed by a car. Recalculate the mean, median, and mode without that dog’s data. (3 points)

c. Which measure of central tendency in part b changed the most, compared to the values originally calculated in part a? (1 point)

2. For the following set of scores: 3, 8, 13, 23, 26, 26, 26, 27, 28, 28, 29, 30, 32, 41, 49, 56, calculate the following:

1. range (1 point)
2. mean absolute deviation (3 points)
3. standard deviation (use *n* as a denominator) (3 points)

3. For the following set of scores: 64, 45, 58, 51, 53, 60, 52, 49, calculate the following:

a. the mean (1 point)

b. the standard deviation (use *n* as the denominator) (1 point)

c. convert each score to a z-score (4 points)

d. the mean of the z scores (1 point)

e. the standard deviation of the z-scores (use *n* as the denominator) (1 point)

4. Use Table A.1 from the textbook to find the area of the normal distribution *beyond z*, when z equals (the area referred to as *Beyond z* is the area that begins at *z* and extends away from the mean in the direction of the closest tail. For this specific problem, it is in the positive direction; but for other problems in the future, it could be in the negative direction): (5 points)

1. 0.09:
2. 0.75:
3. 1.05:
4. 1.96:
5. 2.57:

5. A teacher thinks her class has an unusually high IQ, because her 36 students have an average IQ ($\overbar{X}$) of 108. If the population mean is 100 and σ = 15,

1. What is the z score for this class? (Notice that this is about a sample -- the class is a sample, so you need to use the z-score formula for samples) (4 points)
2. Based on the z-score that you just calculated, what percentage of classes (of the same size) would you expect to have a higher average IQ than this class? (1 point)