PSY 305 Assignment 1 - REVISED

1. *A researcher gives a group of 25 participants a memory word-memory task. For this task, the average number of words remembered in the population is 24 with a standard deviation of 6. She teaches them a memory technique to use which she expects will improve their ability to remember. She finds that her sample remembers average 30 words.*

    a. What is the research hypothesis?
    b. Is this a one or two tailed hypothesis?
    c. What is the null hypothesis?
    d. What is the z value?
    e. What is the critical value for $\alpha = .05$?
    f. What do you conclude?
    g. EXTRA CREDIT: What is the exact probability for this outcome (in other words, the percentage of the normal curve greater than the z score)? Is this probability greater or smaller than the alpha (α) level of .05?

2. *A professor has been teaching statistics for many years. His records show that historically the overall mean for final exam scores is 85 with a standard deviation of 12 This year he used a different teaching method, and he wants to test whether this year's class (the sample) is statistically different from the past classes (the population). The mean score for the 36 students in this year's class is 80.*

    a. What is the research hypothesis?
    b. Is this a one or two tailed hypothesis?
    c. What is the null hypothesis?
    d. Calculate the z value.
    e. What is the critical value for $\alpha = .05$?
    f. What do you conclude?
    g. EXTRA CREDIT: What is the exact probability for this outcome (in other words, the percentage of the normal curve greater than the absolute value of the z score)? Is this probability greater or smaller than the alpha (α) level of .05?

3. *A medical resercher is studying the effect of Vitamin Z on people's cholesterol level. In reality, Vitamin Z does not affect cholesterol, but the researcher concludes that the vitamin does lower cholesterol.*

Has the researcher made a Type I error or a Type II error? Explain your answer.