1. Classify the following as independent or dependent samples:
   1. The effectiveness of two blood pressure medicines on two groups of patients.
   2. Measures of gas mileage and speed for a group of racecars.
   3. Scores of a group of nurses on the NCLEX nursing license exam.
2. Please answer the following.
   1. Explain the difference between testing a single mean and testing the difference between two means.
   2. What two assumptions must be met when one is using *z* test to test differences between two means?
   3. When can the sample standard deviations *s*1 and *s*2 be used in place of the population standard deviations *σ*1 and *σ*2?
3. Choose a variable. Before you simulate collecting the data, decide what a likely average might be and list all data in part e.; then complete the following:
   1. Write a brief statement of purpose of the study and the population to be studied
   2. State the hypotheses for the study
   3. Select an α value
   4. Display all the raw data
   5. Decide which statistical test is appropriate and compute the test statistic (*z* or *t).* Find the critical values(s)
   6. State the decision and summarize the results in a paragraph.

You may obtain raw data from the random number table in the appendix section of your text or from any other sources; including sources on the World Wide Web.

1. Please answer each question below.
   1. In what ways is the t distribution similar to the standard normal distribution?

* 1. In what ways is the t distribution different from the standard normal distribution?

Please specify how the formula for the t test differs from the formula for the z test?

1. Complete the following:
   1. Select a variable. Compare the mean of the variable for a sample of 30 for one group with the mean of the variable for a sample of 30 for a second group. Show a hypothetical set of data with a hypothetical mean and standard deviation and show all calculations for conducting a *z* test with these data.
   2. Select a variable. Compare the mean of the variable for a sample of 10 for one group with the mean of the variable for a sample of 10 for a second group. Show a hypothetical set of data with a hypothetical mean and standard deviation and show all calculations for conducting a *t* test with these data.
   3. Select a variable that will enable you to compare proportions of two groups. Use sample sizes of at least 30. Use the *z* test for proportions to analyze the data.

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