Unit 11, Module 29: Hypothesis Testing involving Population Means - 

1. The National Center for Health Statistics reports that the systolic blood pressure for males 35 to 44 years of age has a mean of 128. In a study of business executives, a random sample of 100 executives has a mean systolic blood pressure of 134 with a standard deviation of 4.5. Do the data suggest that the mean systolic blood pressure for business executives is higher than 128?

1. Write out the appropriate hypotheses
2. Find the p-value
3. Explain in words what the p-value means
4. State your conclusion (answer the question in context)

2. A prescription allergy medicine is supposed to contain an average of 245 parts per million (ppm) of active ingredient. The manufacturer periodically collects data to determine if the production process is working properly. A random sample of 64 pills has a mean of 250 ppm with a standard deviation of 12 ppm.

1. Write out the appropriate hypotheses
2. Find the p-value
3. Explain in words what the p-value means
4. State your conclusion (answer the question in context)

3. The National Assessment of Educational Progress (NAEP) gives a math assessment every year to 12th graders in the U.S. On the math test, a score above 275 indicates that a student has the skills to balance a checkbook. For a random sample of 500 young men, the mean NAEP math score is 272 with a standard deviation of 78. Do we have evidence to support that claim that young men nationwide have a mean score below 275?

1. Write out the appropriate hypotheses
2. Find the p-value
3. Explain in words what the p-value means
4. State your conclusion (answer the question in context)

4. In order to test the effectiveness of a new drug in reducing cholesterol level, a random sample of 45 patients who have a higher than normal cholesterol level was chosen. The cholesterol level of each of the patients was measured and recorded before and then after taking the new drug for a period of 6 weeks, and the differences (before − after) were calculated. The appropriate set of hypotheses, in this case, is which of the following?

1. Write out the appropriate hypotheses
2. Find the p-value
3. Explain in words what the p-value means
4. State your conclusion (answer the question in context)