Name: _____ Per: _____ Date: _____

Chapter 9 Topic Questions   A.P. Statistics

1. What is the difference between a confidence interval and a significance test?
2. What are the two hypotheses involved in significance tests? Explain each.
3. Can H_o ever be proved? Why or why not?
4. Can H_a ever be proved? Why or why not?
5. For each of the following settings, define the parameter of interest and write the appropriate null and alternative hypotheses for the test that is described.

   (a) You suspect that a certain six-sided die is not correctly balanced, so that the probability of rolling a 5 is something other than 1/6. You plan to roll the die many times to test whether it's correctly balanced.

   (b) Statistics can help decide the authorship of literary works. Sonnets by an Elizabethan poet are known to contain an average of 6.9 new words (words not used in the poet's other works) and the number of new words is approximately Normally distributed. Now a new manuscript has come to light with many new sonnets, and scholars are debating whether it is the poet's work. They take a simple random sample of five sonnets from the new manuscript and count the number of new words in each one. We expect poems by another author to contain more new words than found in the Elizabethan poet's poems.

6. Explain p-value.
7. In your own words, define significance level.
8. Complete the following:

   If p-value < α then _____

   If p-value ≥ α, then _____
9. Describe types I and II errors
10. Define 'power of a test'. What affects the power of a test?
11. Give the approved wording (script) for a conclusion to a statistical test. (one that shows significance and one that doesn't)