Math 10 MPS - Homework 6

1. What are the two types of hypotheses used in a hypothesis test? How are they related?

2. Describe the two types of error possible in a hypothesis test decision.

True or False?
In Exercises 3-8, determine whether the statement is true of false. If it is false, rewrite it as a true statement.

3. In a hypothesis test, you assume the alternative hypothesis is true.

4. A statistical hypothesis is a statement about a sample.

5. If you decide to reject the null hypothesis, you can support the alternative hypothesis.

6. The level of significance is the maximum probability you allow for rejecting a null hypothesis when it is actually true.

7. A large P-value in a test will favor a rejection of the null hypothesis.

8. If you want to support a claim, write it as your null hypothesis.

Stating Hypotheses
In Exercises 9-14, use the given statement to represent a claim. Write its complement and state which is Ho and which is *Ha.*

9. $p > .65$

10. $\mu \leq 128$

11. $\sigma^2 \neq 5$

12. $\mu = 1.2$

13. $p \geq 0.45$

14. $\sigma < 0.21$

15. A study claims more than 60% of students text-message frequently. In a poll of 1000 students, 660 students said they text message frequently. Can you support the study's claim? Conduct the test with α = 1%. Show all steps of hypothesis testing

16. 15 I-pod users were asked how many songs were on their I-pod. Here are the summary statistics of that study:

$$\overline{X} = 650 \qquad s = 200$$

Can you support the claim that the number of songs on a user's I-pod is different from 500? Conduct the test with α= 5% . Show all steps.