MAT 223, Quiz #13, Fall 2015   Name _____ KEY _____

Instructions: Show all work. If you use your calculator, give calculator commands used. Use exact answers, or round appropriately. Answer all parts of each question.

1. What does it mean to say a test is "statistically significant"? How is this different from what we colloquially mean when we call something "significant"?

if means the result is unlikely to be due to chance whereas in everyday language we mean something more like "large & meaningful"

2. Why might we wish to use an α of 0.01 instead of 0.05?

if we are taking a risk in accepting Ha, we may want to be more sure that the evidence is strong before adopting it.

3. A class of 30 students are measured for their heights and it was found that they have a mean height of 42.3 inches with a standard deviation of 5.2 inches. If the mean height of students of the same age is expected to be 44 inches, does this sample suggest that the mean height of these students is significantly shorter than average? Use $\alpha = 0.05$ in your hypothesis test.

$H_o: \mu = 44$
$H_a: \mu < 44$

T-Test (Stats) $t = -1.79...$
$\mu_0 = 44$ $P = .04189... < .05$ reject Ho
$\bar{x} = 42.3$
$S_x = 5.2$ yes, there is good reason to think that
$n = 30$ the mean height of students in this
$\mu < \mu_0$ group is less than 44 inches.