STAT 1450, Quiz #8, Fall 2013   Name _____KEY_____

Instructions: Show all work. If you use your calculator to conduct the hypothesis tests or find confidence intervals rather than doing them by hand, show what your Test screen looks like, and the results after pressing calculate, along with your interpretation.

1. A survey showed that among 785 randomly selected subjects who completed 4 years of college, 18.3% smoke and 81.7% do not smoke. Use a 0.01 significance level to test the claim that the rate of smoking among those with 4 years of college is less than the 27% rate for the general population. Why would college graduates smoke at a lower rate than others?

1-PropZTest

$p_0 = 27\% = .27$

$x = .183 * 785 = 144 \Rightarrow$

$n = 785$

prop $< .27$

$z = -5.46...$

$p = 2.349..E-8$

$\hat{p} = .1834...$

$n = 785$

$H_0: p \geq .27$

$H_1: p < .27$

reject null
the proportion is lower

more education may make college graduates more aware of dangers of smoking

2. A simple random sample of 36 cans of regular Coke has a mean volume of 12.19 oz. Assume that the standard deviation of all cans of regular Coke is 0.11 oz. Use a 0.05 significance level to test the claim that cans of regular Coke have volumes with a mean of 12 oz., as stated on the label. If there is a difference, is it substantial?

Z-Test (Stats)

$\mu_0 = 12$

$\sigma = .11$

$\bar{x} = 12.19$

$n = 36$

$\mu \neq \mu_0$

$\Rightarrow$

$\mu \neq 12$

$z = 10.36...$

$p = 3.7...E-25$

$\bar{x} = 12.19$

$n = 36$

$H_0: \mu = 12$

$H_1: \mu \neq 12$

reject H_0.
mean is higher than 12.02. but .2.02 isn't exactly substantial.

3. Use the data on FICO scores listed below to test the assumption that FICO scores have a mean of 678, with a standard deviation of 58.3 (as reported by a credit rating agency). Use a 0.05 significance level to test the claim.

714, 751, 664, 789, 818, 779, 698, 836, 753, 834, 693, 802

Z-Test (Data)

$\mu_0 = 678$

$\sigma = 58.3$

List: L_1

Freq: 1

$\mu \neq \mu_0$

$\Rightarrow$

$\mu \neq 678$

$z = 4.9267...$

$p = 8.37...E-7$

$\bar{x} = 760.916..$

$S_x = 58.28..$

$n = 12$

we reject null that the mean is 678.

$H_0: \mu = 678$

$H_1: \mu \neq 678$