**Name: Math 153 Test #4**

Directions: For each problem state the Population and Parameters and then conduct the appropriate hypothesis test using a 5% level of significance for each test.

1. 150 snorers were questioned about the number of hours they sleep each day. We want to test the hypothesis that snorers need more sleep than the general public which needs an average of 7.7 hours of sleep. If the sample mean is 7.9 hours and the sample standard deviation is .25 hours is there sufficient evidence that suggests snorers do need more sleep then non-snorers?

Population: People who Snore

Parameter(s): Hours of sleep per night

Ho: Mu = 7.7

Ha: Mu > 7.7

Condition(s): Sample > 30 & Populations is at least 10 times greater

Type of Test: 1-Sample t-Test

P-value: .000

Conclusion: We would reject the Null Hypothesis, which means there is significant evidence that suggests snorers need more than 7.7 hours of sleep per night.

1. John recently claimed that the proportion of high school males that claim to drink alcohol is significantly higher than the proportion of high school females that claim to consume alcohol. He conducted a survey in his school, out of 80 males, 45 claims to drink alcohol. Out of 76 females, 31 claim to consume alcohol. Do you believe that the proportion of males is higher than the proportion of females?

Population 1: High School Males

Population 2: High School Females

Parameter(s): Proportion of Males who claim to consume alcohol and proportions of females who claim to consume alcohol

Ho: p1 = p2

Ha: p1 > p2

Condition(s): n1p1 > 10, n1q1 > 10, n2p2 > 10, n2q2 > 10

Type of Test: 2-Proportion Test

P-value: .038

Conclusion: We would reject the Null Hypothesis that the proportion of Males and Females who claim to consume alcohol is the same, which means there is significant evidence that suggests that high school males claim to consume more alcohol them females.