9.1 Worksheet 3

Significance Tests with Proportions

**★I can identify the proportion parameter that I am interested in based on sample data★**

**★I can determine if a test is one sided or two sided★**

**★I can compute the value of the test and the p-value when conditions have been met★**

**★I can compare the p-value to α to make a decision about the null hypothesis★**

Do the following significance tests. Show ALL Steps!! (PHCTAC)

1. Eleven percent of the products produced by an industrial process over the past several months fail to conform to specifications. The company modifies the process in an attempt to reduce the rate of non-conformities. In a trial run, the modified process produces 18 non-conforming items out of a total of 300 produced. Do these results demonstrate that the modification is effective (are the non-conformities less)? Test at α = 0.05.
2. The US Department of Transportation reported the 77% of automobile fatalities were from intoxicated drivers. A random sample of 27 records in Livingston County showed that 15 involved an intoxicated driver. Does this prove that the number of fatalities by intoxicated drivers is different in Livingston County? Test at α = 0.04.
3. A high school reports that 3.9% of students that begin high school end up dropping out before graduation. In a sample of 500 students, 36 dropped out before graduating. Is this evidence at α = 0.05 that the proportion of high school dropouts is actually higher?