Project 13 – Chapter 10 & 11 Mixed Practice

There is one of each type of test we have covered – one proportion (10.2), two proportions (11.1), one mean (10.3), paired difference (11.2), or two mean (11.3). If a test does not satisfy the conditions, perform the appropriate alternative test. Use the standard 5-step procedure when writing up your hypotheses tests.

1) It is claimed that 60% of all 18- to 25-year olds have used alcohol in the past 30 days. A survey of 125 students on campus who are between the ages of 18 and 25 showed that 83 have used alcohol in the past 30 days. Test the claim at the 0.05 level of significance.

2) To test the belief that sons are taller than their fathers, a student randomly selects 13 fathers who have adult male children. She records the height of both the father and son in inches and obtains the following data. Test the claim that sons are taller than their fathers at the 0.05 level of significance.

Family	1	2	3	4	5	6	7	8	9	10	11	12	13
Father	70.3	67.1	70.9	66.8	72.8	70.4	71.8	70.1	69.9	70.8	70.2	70.4	72.4
Son	74.1	69.2	66.9	69.2	68.9	70.2	70.4	69.3	75.8	72.3	69.2	68.6	73.9

3) Here are 10 randomly selected blood sugar levels from a laboratory. (Levels measured after a 12-hour fast in mg/DL.)

$$105 \quad 89 \quad 96 \quad 135 \quad 94 \quad 91 \quad 111 \quad 107 \quad 150 \quad 83$$

At the 0.05 level of significance, test the claim that the mean blood sugar level is above 90 mg/DL.

4) A researcher plans soybeans in two types of plots: "No till" and "Chisel plowed". The data represent the number of pods on a random sample of soybean plants for the two plot types.

Plot Type	Pods								
No till	34	30	31	27	40	33	37	42	39
Chisel plowed	34	37	24	23	32	33	27	34	30

At the 0.05 level of significance, test the claim that the mean number of pods for "Chisel plowed" is less than "No till".

5) A research company conducted a survey in which they asked, "How many tattoos do you currently have on your body?"

- Of the 60 males surveyed, 9 responded that they had at least one tattoo.
- Of the 110 females surveyed, 14 responded that they had at least one tattoo.

Test the claim that the proportion of males that have a tattoo is the same as the proportion of females that have a tattoo, at the 0.05 level of significance.