

Name: _____
MAT 222
Spring 2019
Quiz 4

“Our lives are not our own. We are bound to others, past and present, and by each crime and every kindness, we birth our future.”

– Sonmi-351, Cloud Atlas

Problem 1: A study was conducted to understand the difference in blood pressure between people with two different types (high and low) of sleeping habit. The sample data is summarized below.

Group	Count	Mean	Standard Deviation
High	8	111.40	6.77
Low	5	120.20	7.16

(a) Construct a 90% confidence interval for the difference of the means for the high and low sleep groups. [Do not use pooled procedures.]

(b) At a significance level of 1%, test the following hypothesis. Be sure to give your test statistic, p -value, and state your conclusion.

$$\begin{cases} H_0 : \mu_{\text{High}} = \mu_{\text{Low}} \\ H_a : \mu_{\text{High}} < \mu_{\text{Low}} \end{cases}$$

(c) Why might a pooled t -procedure be appropriate here? Justify your answer mathematically.