Statistics Chapter 10
Sections 10.3

1. Look at the following data below that compares Method A vs. Method B.

A	1	5	8	9	5	4	4
B	3	2	0	1	3		

Is the above data related to two independent samples or one dependent sample? How do you know?

2. Can 2 Independent Populations yield samples that are the same size? _____

3. In a hypothesis test between 2 Independent Populations, the relation between the two populations is unimportant. Why?

4. In a hypothesis test between 2 Independent Populations, the Null Hypothesis will usually be...

H_o: _____

What is the assumption between both population averages? _____

_____

5. In a confidence interval between 2 Independent Populations, is it possible to get a “+” and “-“ value for the results?

6. Suppose a calculation for a confidence interval between the average test scores for Period 1 Stats and Period 7 Stats produced the values,

   (-5.35 to 15.21)

   The manner of subtraction was (Period 1 average) – (Period 7 average). What does the interval indicate?

7. What calculator function is used to conduct a hypothesis test between 2 Independent Populations?

8. What calculator function is used to conduct an estimation between 2 Independent Populations?

9. There are two methods to find the Degree of Freedom between 2 Independent Populations.

   a. _____

   b. _____

10. Referring to question #9, which method is the preferred method to find t*?

11. A pharmaceutical company is interested in the time required for headache remedies to enter the blood stream. Below are the data comparing two brands.

Medication Brand	$\bar{x}$	s_x	n
A	20.1 min	8.7 min	12
B	11.2	7.5	8

Brand B claims to be faster. Is there sufficient evidence to support Brand B's claim? Let the level of significance equal 0.05.

a. Are both brands of medication Independent? Why

b. Is this problem considered a hypothesis test or confidence interval?

c. According to the problem what is the relation between the two brands of medication? (Define the relation by using inequalities)

d. Step 1.

e. What are the three necessary components of Step 2?

f. In this example, which component of Step 2 cannot be evaluated?

g. Is it possible that one sample is not biased, whereas the other sample is biased?

h. Complete Step 2 for the problem.

i. What are the 4 components necessary for Step 3?

j. In the equation, what is $(\mu_1 - \mu_2)$ equal to?

k. What function in the TI 84 or 89 calculator will you use for this Hypothesis Test?

l. If you see a p-value = 2.56 E -4, what is that value equal to (in scientific notation or decimal format)

m. When can the Null Hypothesis be rejected?

n. Do all of Step 3

o. Do all of Step 4

12. A Medical Researcher would like to investigate the number of people that have Hay Fever in Kansas. Here are the data.

Rate of Hay Fever per 1000 population for people under 25

98	90	120	128	92	123	112	93
125	95	125	117	97	122	127	88

Rate of Hay Fever per 1000 population for people over 50

95	110	101	97	112	88	110
79	115	100	89	114	85	96

Estimate with 95% confidence the average difference between the rate of Hay Fever for people under 25 years old and over 50 years old.

a. Step 1. Write up the statement

b. What are the 3 elements necessary to check off Step 2?

c. Do you need to check the 3 elements for both samples?

d. Do Step 2

e. In Step 3 for estimation, what are the 2 necessary components.

f. What is the equation you will use for this problem?

g. Which way are you going to subtract the problem?

h. What are the possible degree's of freedom in this problem?

i. Which degree of freedom will you use for this problem to find t*?

j. Suppose you ended up with the result of (-20.3 to 10.1) and you found the average difference by $\overline{x_{25}} - \overline{x_{50}}$. What do the values indicate? (Higher vs. Lower)

k. Do Step 3.

l. Should you have any negative values when you write up Step 4?

m. Do Step 4.