

## PASW Regression and Hypothesis Worksheet

Answer the following questions in a Word document. Copy the relevant tables output by SPSS into the Word document to justify your answers.

1) Go to the Web Site

**<http://www.physics.csbsju.edu/stats/t-test.html>** and solve the problem under the heading Paired Data. Use the online tool to run the Paired Student's t-test.

This problem looks at Cedar-apple rust disease, and if there is a difference in the disease after treatment.

a) What is the NULL hypothesis?

b) Perform the Paired Student's t-test in SPSS. Do your results match?

c) Should we accept or reject the Null Hypothesis? Why?

d) State your conclusion

2) The dean of students wants to see whether there is a significant difference in age between resident students and commuting students. She selected a random sample of 10 students from each group.

The data follows:

Resident Students	Commuter Students
22	18
25	20
27	19
23	18
26	22
28	25
26	24
24	22
25	23
20	18

**Null hypothesis:** There is no statistically significant difference in the age between resident and commuting students in the above study.

**Question:** Should we accept the null hypothesis?

3) Consider the following table which shows the number of bushels of wheat produced for the given rainfall amounts:

Rainfall	2.5	3	4.5	7.6	9.5	10.3	in inches
Bushels	37	43	42	46	48	51	of wheat

- Create a scatterplot (scattergram) for this data. You need to correctly set up the data in SPSS and then graph the data correctly by deciding which variable is the dependent variable and which variable is the independent variable.
- What is the dependent variable? Why?
- What is the independent variable? Why?
- Is there a strong relationship between rainfall and bushels of wheat? Why?

4) Assume you are taking a Sociology class and the professor wants you to solve the AIDS problem using SPSS. The professor wants an SPSS graph and equation that can be used to estimate the number of AIDS deaths in a given year. Again, do not type in the information. Instead, find a way to import the data into SPSS and rework the problem. Paste in your results into a Word document.

Let us consider the following data which represents the number of deaths,  $N$ , from AIDS in the United States from 1981 to 1996, where  $t$  denotes the number of years after 1980.

<b>t</b>	<b>N</b>
1	159
2	622
3	2130
4	5635
5	12607
6	24717
7	41129
8	62248
9	90039
10	121577
11	158193
12	199287
13	243923
14	292586
15	340957
16	375904