

## Homework 4

**Problem 1:** Use the [oil acquisition costs](#) data from sakai to answer the following questions:

- a) Is the (true) average Domestic Crude Oil Refiner Acquisition costs smaller than \$20 per Barrel?
- b) Is the (true) average Imported Crude Oil Refiner Acquisition costs different from \$15 per Barrel?
- c) Are the average Domestic and average Imported Crude Oil Refiner Acquisition costs different?
- d) Assume the collected data are not related to the dates, then are the average Domestic and average Imported Crude Oil Refiner Acquisition costs different? (Hint: use this dataset to do the two sample t-test.)
- e) Use PROC ANOVA to do d) again. Compare the t statistic used in d) and the F statistic in e). Do they have any relationship? Also, compare the p-values.

[Hint: The data does not start from the first line, try options firstobs = 5;  
For part a. one sample one-sided t-test;  
For part b. one sample two-sided t-test;  
For part c. probably a paired t-test is more reasonable;  
For part d. two sample t-test; equal variances or unequal? Use [the oil acquisition costs2 dataset](#) from sakai to do the two sample t test.]

Include the SAS code and output file and your answer to these questions.

**Problem 2:** Examine the [oil acquisition costs](#) data set again.

Use PROC PLOT to plot:

- a) domestic vs date, without any other options
- b) imported vs date, with the character '%' as the indicator
- c) domestic vs date, and import vs date separately but on the same page.

Include the SAS code and output file.