Math7335 Homework5. Assigned on Oct 27, Due on Nov 2 (Thursday) 2017 **Name:** _____

	Q1	Q2
50 points	24	26

Note:
1. *The dataset used for the following questions has been posted on TRACS in the "Data/Homework Data" folder. The file name of this dataset is "Data.Problem.10.1.TableB1.txt"*
2. *Please upload an electronic version of your solution in the Dropbox of TRACS and hand in a hard copy too.*
3. *The R example code file "**R.ch10.regsubsets.step.pdf**" has been posted in the "R code" folder on TRACS.*

Question 1. Problem 10.1 on page 367

10.1 Consider the National Football League data in Table B.1 .

a. Use the forward selection algorithm to select a subset regression model.

b. Use the backward elimination algorithm to select a subset regression model.

c. Use stepwise regression to select a subset regression model.

d. Comment on the final model chosen by these three procedures.

Hint: use the "step" function. Read the example code file "R.ch10.regsubsets.step.pdf"(bottom of page 2 to 6)

Question 2. Problem 10.2 on page 367

10.2 Consider the National Football League data in Table B.1 . Restricting your attention to regressors x_1 (rushing yards), x_2 (passing yards), x_4 (field goal percentage), x_7 (percent rushing), x_8 (opponents' rushing yards), and x_9 (opponents' passing yards), apply the *all-possible-regressions procedure*. Evaluate R_p^2, adjusted $R_{adj,p}^2$, C_p, MS Res for each model. Which subset of regressors do you recommend?

Hint:
1) *"apply the all-possible-regressions procedure" means considering the subset of all the above 5 individual predictor variables, but do not need to consider the interaction of them. You need to type the following command to install the "leaps" library first to use "regsubsets": install.packages("leaps"); library(leaps)*
2) *Read the example code file "R.ch10.regsubsets.step.pdf" (page 1 to 2)*
3) *The following website has a good example R code about using "regsubsets" for model selection by exhaustive search, forward or backward stepwise, or sequential replacement.*
   https://rstudio-pubs-static.s3.amazonaws.com/2897_9220b21cfc0c43a396ff9abf122bb351.html
   I also save the information in the above web link in the file "All.subset.regression.ch10.pdf", which is posted on TRACS in the R code folder. You may read page 1-3 of this file.