Due date September 21, 2018.

1. (50 pts.) Consider the data frame `Auto` from library `ISLR`. It is of interest to predict the car's mileage `mpg` using predictor `horsepower`. Use the validation set approach with 50% of available data as training set (use `set.seed(9)`)

   a) Fit a quadratic regression model, report the MSPE, and a scatterplot (full data set) with the fitted quadratic curve (red color).

   b) Fit a degree-5 polynomial model, report the MSPE, and a scatterplot (full data set) with the fitted polynomial curve (red color).

2. (50 pts.) A real estate appraiser is interested in predicting residential home prices in a mid-western city as a function of various features. For that purpose a regression model is to be constructed from a sample of 522 houses. Download the `homes.xls` data set from blackboard.

   Consider the predictors
   x_1: lot size (square feet), x_2: area (square feet), x_3: number of bedrooms,
   x_4: number of bathrooms, x_5: year of construction, x_6: garage size (number of cars).

   Use `set.seed(1)` and the function `regsubsets` with cross validation, to find the best model. Consider

   a) Leave-One-Out cross validation.

   b) 10-fold cross validation