1. Go through the 5 steps of hypothesis testing given in class for Example 0.6 in the book. (Hint: See the output on page 11 for the numerical values you will need.)


3. Do exercise 1.16 (page 59-60), with the following modifications and additions:
   a. Do as stated.
   b. Do as stated, but in addition give an interpretation of the slope and intercept in the context of this situation.
   c. Do as stated.
   d. Do as stated, but for the plots include a normal probability plot, a plot of residuals versus year, and a histogram of residuals.
   e. Do as stated.
   f. (Not in book.) The cost of mailing a letter in 2015 is 49 cents. Use the regression equation from part (b) to predict the cost for mailing a letter in 2015, and find the residual for 2015. Interpret the residual.

4. Do exercise 1.29 (page 65) with the following modifications and additions:
   a. Do as stated.
   b. Do as stated, but in addition give an interpretation of the slope in the context of this situation.
   c. (Not in book.) Three potential explanations for outliers were given in class, and it was noted that the decision about whether to remove outliers should depend on which explanation is most likely. In this example, which of the three explanations is appropriate? Is it appropriate to remove the two outliers?
   d. (Not in book.) How much would you predict that the faculty member will invest in 2015?

5. For this problem, you will use the highway sign data and the applet for guessing and viewing a regression line, both linked to the class website. The links are below as well, in case you need them.
   a. Copy and paste the highway sign data into the data box at the applet website, removing the data that is there when you open the applet. Check the box “Show regression line” and write down the equation it provides, in the form shown.
   b. Remove the point that looked like a slight outlier when the example was discussed in class, which had a standardized* residual of 2.3. (You can remove it by just deleting it in the data box.) Now check the box “Show movable line.” Move the line until you think you have found the right place for the regression line. Write down the equation for the line you have placed. (This answer will differ for each student, but must be plausible to get credit.) Now check the box “Show regression line” and write the equation it gives. How well did you do in guessing where the line should go?
   *Updated 10/11 by adding “standardized.” Sorry for the confusion!
   http://www.ics.uci.edu/~jutts/110/HighwaySign.txt
   http://www.rossmanchance.com/applets/RegShuffle.htm

6. Do exercise 2.14 (page 82) with the following modifications and additions.
   a. Use the 5 steps for hypothesis testing given in class.
   b. Include an interpretation of the confidence interval.
   c. (Not in book.) Give numerical values for $\hat{\beta}_0$, $\hat{\beta}_1$ and $\hat{\sigma}_\epsilon$, then interpret the value of $\hat{\sigma}_\epsilon$. In other words, what does that value estimate, in the context of this example?