MATH 2240 – Problem Set #1   **Due Friday, January 24**

Read Example 1.4 on the bottom of p. 10 in our textbook, and then download the FISHDDT file to Minitab (datasets can be found on the course webpage). Answer the following questions, using Minitab where appropriate. (I suggest typing your solutions in Word, since Minitab and Word work well together.)

a. What is the population of interest? Be specific!

b. What is the sample? Do you feel that it is representative of the target population? Explain.

c. Use Minitab to create two pie graphs: one for the species of fish and another for the river/creek where each fish was captured. Be sure to include descriptive titles and slice labels.

d. Use Minitab to create three histograms: one for the length, one for the weight, and one for the DDT concentration. Be sure to include descriptive titles and to label your axes.

e. The Army Corps of Engineers is interested in DDT concentration. Notice that the histogram of the sample DDT concentrations is heavily skewed right. In this situation, the median is much more representative of the center of the distribution. Use Minitab to find this median, and interpret your answer in a sentence written to a general audience.

f. Use Minitab to create a box plot of the lengths. Be sure to include a descriptive title and axis label. Find, and interpret, the z-score of the shortest fish in the sample (use Minitab to find the appropriate mean and standard deviation).

g. It is reasonable to assume that the weights of all the fish in the target population are normally distributed (and your histogram of the weights of the fish in the sample should back this up). Draw and label a picture, based on the Empirical Rule and your sample data, which approximates the distribution of the weights of all the fish in the target population (again, use Minitab to find the appropriate mean and standard deviation). What specific interval of weights is likely to contain 95% of the fish in the target population?