1. Following are data from 19 livestock auction markets. The variables CATTLE, CALVES, HOGS, and SHEEP are the numbers of head (in thousands) of those categories of animals that were sold at each market. The variable COST is the cost (in thousands of dollars) of operating the market. The objective of this study was to relate COST to the numbers of head of livestock. The data are contained in the data set AUCTION. For this homework assignment, you will use only CATTLE as an independent variable.

   a. Obtain the simple linear regression equation relating COST to CATTLE.

   b. Construct a 95% confidence interval for the cost per head of cattle.

   c. Construct a plot of COST versus CATTLE. Does COST appear to be linearly related to CATTLE?

   d. Plot the residuals versus predicted values. Do see a random scattering of points? Are there apparent outliers?

   e. Remove apparent outliers and re-work parts a. and b. How did the results change?

2. a. Use the analysis based on the entire data set. Compute the predicted cost of operation for each market based on the model equation.

   b. Plot a band of 95% confidence intervals for the expected cost of operation of all markets. How many observed cost values are in the intervals?

   c. Plot a band of 95% prediction intervals for the cost of operation of individual markets. How many observed cost values are in the intervals?