The *caliper* of a tree is the diameter of the tree measured six inches from the ground. A researcher measures the caliper of sixteen trees sampled at random from all trees between 12 and 14 feet tall in a nursery. The measurements in inches are displayed here.

1.44 1.64 1.33 1.49 1.90 1.50 1.51 1.51 1.70 1.21 2.05 1.65 1.76 1.18 1.19 1.80

The mean and standard deviation of these values are 1.555 and 0.255 inches, respectively.

(a) Find the lower and upper quartiles and the median of the data and display the data with a boxplot.

(b) Find a 99% confidence interval for the mean caliper of 12 to 14 foot tall trees in the nursery. Interpret the confidence interval in the context of the problem.

(c) Is your confidence interval valid? Comment on the features of the data apparent in your numerical and graphical summaries that might affect the validity of the confidence interval in the previous part.

(d) Find a 95% confidence interval for the proportion of trees in the nursery with heights between 12 and 14 feet whose calipers are greater than 2 inches.

(e) Answer TRUE or FALSE. For a different species of tree, if a 90% confidence interval for the mean caliper μ of trees with heights between 12 and 14 feet tall is computed to be $2.1 < \mu < 2.6$, then 90% of the individual trees in this new population have calipers between 2.1 and 2.6 inches.