2-12. USEFUL FORMS OF DATA

a. Answers vary, but it is expected that a student will recommend rewriting the list in order by time, shortest to longest.

b. To add 42 to the plot, a 2 would be inserted in the right column to the left of 3. To add 102, new rows would be added for 8, 9, and 10 in the left column; then in the cell to the right of 10, 2 would be placed; the cells to the right of 8 and 9 would remain blank. The cell to the right of the 5 is blank because there are no data values greater than or equal to 50 and less than 60.

c. Results will depend on the class data.

d. Answers vary depending on the class data; encourage statements that describe clusters of data, values that are very much larger or smaller than most (also called "outliers"), what a "typical" piece of data is, how much the data varies, and overall general statements about how well the class estimates time.

2-13. CREATING A HISTOGRAM

a. Although the data is numeric and can be plotted on a number line, numerous pieces of data do not fall on each value, so the dot plot would be very flat and not very interesting to analyze.

b. Copy histogram to notes.

c. Answers depend on data.

d. The data would be combined into fewer bins, which would raise the heights of some of the bins. Students should note the loss of details about the data. This new histogram also might suggest that students performed better as a class in the experiment because those students who previously were in the 40 – 50 range are now in the 40 – 60 range, close to the time they were aiming for. 5 second bins would give more detailed information about the accuracy of the students. However, the bins would be so short that they are no longer interesting to analyze.