Boxplots. ***In Exercises 29–32, use the given data to construct a boxplot and identify the 5-number summary.***

29. *Challenger* Flights The following are the duration times (minutes) of all missions flown by the space shuttle *Challenger*.

1 7224 8709 8784 10,060 10,089 10,125 11,445 11,476 11,844

30. Old Faithful The following are the interval times (minutes) between eruptions of the Old Faithful geyser in Yellowstone National Park (based on data from the U.S. National Park Service).

81 81 86 87 89 92 93 94 95 96 97 98 98 101 101 106

31. Grooming Times The following are amounts of time (minutes) spent on hygiene and grooming in the morning by survey respondents (based on data from an SCA survey).

4 6 7 9 14 15 15 16 18 18 25 26 30 32 41 45 55 63

32. Speeds The following are speeds (mi/h) of cars measured with a radar gun on the New Jersey Turnpike (based on data from Statlib and authors Joseph Kadane and John Lamberth).

70 70 71 72 72 73 73 74 76 77 78 78 78 79 79

Boxplots from Larger Data Sets in Appendix B. ***In Exercises 33–36, use the given data sets from Appendix B.***

33. Pulse Rates Use the same scale to construct boxplots for the pulse rates of males and females from Data Set 1 in Appendix B. Use the boxplots to compare the two data sets.

34. Ages of Oscar Winners Use the same scale to construct boxplots for the ages of the best actresses and best actors from Data Set 11 in Appendix B. Use the boxplots to compare the two data sets.

35. Weights of Regular Coke and Diet Coke Use the same scale to construct boxplots for the weights of regular Coke and diet Coke from Data Set 19 in Appendix B. Use the boxplots to compare the two data sets.

36. Lead and IQ Use the same scale to construct boxplots for the full IQ scores (IQF) for the low lead level group and the high lead level group in Data Set 5 of Appendix B.

3-4 Beyond the Basics

37. Outliers and Modified Boxplots Repeat Exercise 34 using modified boxplots. Identify any outliers as defined in Part 2 of this section. What do the modified boxplots show that the regular boxplots do not show?

38. Interpolation When finding percentiles using Figure 3-5, if the locator L is not a whole number, we round it up to the next larger whole number. An alternative to this procedure is to *interpolate*. For example, using interpolation with a locator of $L = 23.75$ leads to a value that is 0.75 (or 3/4) of the way between the 23rd and 24th values. Use this method of interpolation to find P_{17} for the chocolate chip counts in Table 3-4. How does the result compare to the value that would be found by using Figure 3-5 without interpolation?