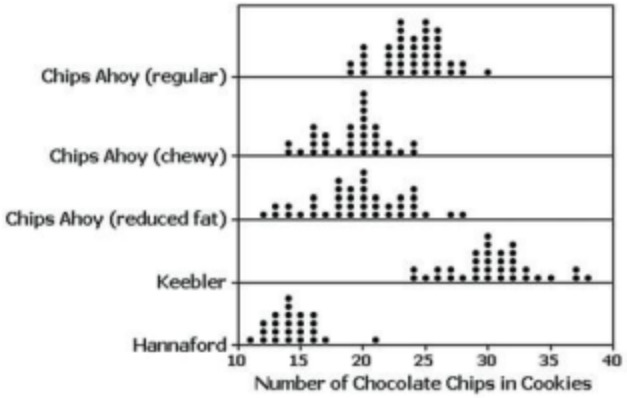

Figure 3-1 Dotplot of Numbers of Chocolate Chips in Cookies

Figure 3-1 is a dotplot (described in Section 2-4) that includes all of the cookies from Table 3-1. Figure 3-1 shows some obvious differences. Instead of relying solely on subjective interpretations of a graph like Figure 3-1, this chapter introduces measures that are essential to any study of statistics. The mean, median, standard deviation, and variance are among the most important statistics presented in this chapter, and those statistics will be used in our description, exploration, and comparison of the counts in Table 3-1.

3-1 Review and Preview

Chapter 1 discussed methods of collecting sample data. Chapter 2 presented frequency distributions and a variety of different graphs that help us summarize and visualize data. In Chapter 2 we noted that when describing, exploring, and comparing data sets, these characteristics are usually extremely important: (1) center; (2) variation; (3) distribution; (4) outliers; and (5) changing characteristics of data over time. In this chapter we introduce important statistics, including the mean, median, and standard deviation. Upon completing this chapter, you should be able to find the mean, median, standard deviation, and variance from a data set, and you should be able to clearly understand and interpret such values. It is especially important to understand values of standard deviation by using tools such as the range rule of thumb described in Section 3-3.

Critical Thinking and Interpretation: Beyond Formulas

This chapter includes several formulas used to compute basic statistics. Because many of these statistics can be easily calculated by using technology, it is not so important for us to memorize formulas and manually perform complex calculations. Instead, we should focus on understanding and interpreting the values we obtain from them.

The methods and tools presented in Chapter 2 and in this chapter are often called methods of **descriptive statistics,** because they summarize or describe relevant characteristics of data. Later in this book, we will use **inferential statistics** to make inferences, or generalizations, about a population.

3-2 Measures of Center

Key Concept The focus of this section is the characteristic of center of a data set. In particular, we present measures of center, including *mean* and *median,* as tools for analyzing data. Our objective here is not only to find the value of each measure of