15. Male Red Blood Cell Counts Use the frequency distribution from Exercise 25 in Section 2-2 to construct a histogram. Using a very loose interpretation of the requirements for a normal distribution, do the red blood cell counts appear to be normally distributed? Why or why not?

16. Female Red Blood Cell Counts Use the frequency distribution from Exercise 26 in Section 2-2 to construct a histogram. Using a very loose interpretation of the requirements for a normal distribution, do the red blood cell counts appear to be normally distributed? Why or why not?

17. Flight Arrival Times Use the frequency distribution from Exercise 27 in Section 2-2 to construct a histogram. Which part of the histogram depicts flights that arrived early, and which part depicts flights that arrived late?

18. Flight Taxi-Out Times Use the relative frequency distribution from Exercise 28 in Section 2-2 to construct a histogram. If the quality of air traffic procedures were improved so that the taxi-out times vary much less, would the histogram be affected?

2-3 Beyond the Basics

19. Back-to-Back Relative Frequency Histograms When using histograms to compare two data sets, it is sometimes difficult to make comparisons by looking back and forth between the two histograms. A *back-to-back relative frequency histogram* has a format that makes the comparison much easier. Instead of frequencies, we should use relative frequencies (percentages or proportions) so that the comparisons are not difficult when there are different sample sizes. Use the relative frequency distributions of the ages of Oscar-winning actresses and actors from Exercise 15 in Section 2-2, and complete the back-to-back relative frequency histograms shown below. Then use the result to compare the two data sets.
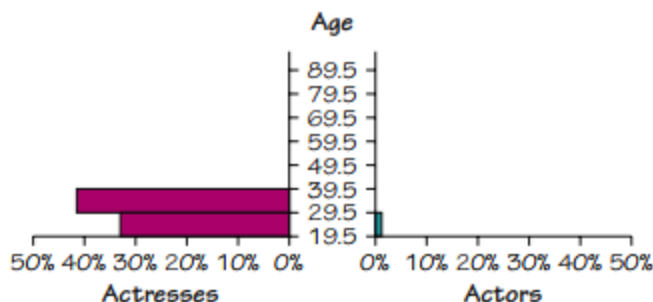
20. Interpreting a Histogram Refer to the histogram given for Exercises 5–8 and answer the following questions:

a. What are the possible values (rounded to the nearest inch) of the largest height included in the histogram? What are those values expressed in feet and inches?

b. Why is it wrong to say that the people with heights between 43 in. and 55 in. are the tallest people because they have the tallest bars in the histogram?

2-4   Graphs That Enlighten and Graphs That Deceive

Key Concept Section 2-3 presented the histogram as a graph that is helpful in learning about the shape of the distribution of data. The histogram is a graph that enlightens in the sense that it gives us better understanding of data. In this section we introduce other commonly used graphs that enlighten. We also discuss some graphs that deceive in the sense that they tend to create impressions about data that are somehow misleading or wrong.

The days of charming and primitive hand-drawn graphs are well behind us, and technology now provides us with powerful tools for generating a wide variety of different graphs. In this section, all figures except Figure 2-19 were generated using technology.