1.32 Shakespeare's plays. Figure 1.13 is a histogram of the lengths of words used in Shakespeare's plays. Because there are so many words in the plays, we use a histogram of percents. What is the overall shape of this distribution? What does this shape say about word lengths in Shakespeare? Do you expect other authors to have word length distributions of the same general shape? Why?
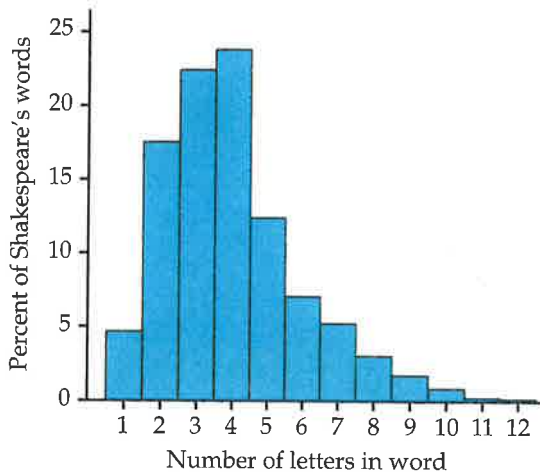

FIGURE 1.13 Histogram of the lengths of words used in Shakespeare's plays, for Exercise 1.32.

1.36 Carbon dioxide from burning fuels. Burning fuels in power plants or motor vehicles emits carbon dioxide (CO_2), which contributes to global warming. Table 1.3 displays CO_2 emissions per person from countries with population at least 20 million.[19] CO_2

(a) Why do you think we choose to measure emissions per person rather than total CO_2 emissions for each country?

(b) Display the data of Table 1.3 in a graph. Describe the shape, center, and spread of the distribution. Which countries are outliers?

TABLE 1.3

Carbon dioxide emissions (metric tons per person)

Country	CO_2	Country	CO_2	Country	CO_2
Algeria	2.3	Iran	3.8	Poland	8.0
Argentina	3.9	Iraq	3.6	Romania	3.9
Australia	17.0	Italy	7.3	Russia	10.2
Bangladesh	0.2	Japan	9.1	Saudi Arabia	11.0
Brazil	1.8	Kenya	0.3	South Africa	8.1
Canada	16.0	Korea, North	9.7	Spain	6.8
China	2.5	Korea, South	8.8	Sudan	0.2
Columbia	1.4	Malaysia	4.6	Tanzania	0.1
Congo	0.0	Mexico	3.7	Thailand	2.5
Egypt	1.7	Morocco	1.0	Turkey	2.8
Ethiopia	0.0	Myanmar	0.2	Ukraine	7.6
France	6.1	Nepal	0.1	United Kingdom	9.0
Germany	10.0	Nigeria	0.3	United States	19.9
Ghana	0.2	Pakistan	0.7	Uzbekistan	4.8
India	0.9	Peru	0.8	Venezuela	5.1
Indonesia	1.2	Philippines	0.9	Vietnam	0.5

Get data from website!

1.32. This distribution is skewed to the right, meaning that Shakespeare's plays contain many short words (up to six letters) and fewer very long words. We would probably expect most authors to have skewed distributions, although the exact shape and spread will vary.

1.36. (a) Totals emissions would almost certainly be higher for very large countries; for example, we would expect that even with great attempts to control emissions, China (with over 1 billion people) would have higher total emissions than the smallest countries in the data set. **(b)** A stemplot is shown; a histogram would also be appropriate. We see a strong right skew with a peak from 0 to 0.2 metric tons per person and a smaller peak from 0.8 to 1. The three highest countries (the United States, Canada, and Australia) appear to be outliers; apart from those countries, the distribution is spread from 0 to 11 metric tons per person.

```
0 | 00000000000000011111
0 | 222233333
0 | 445
0 | 6677
0 | 888999
1 | 001
1 |
1 |
1 | 67
1 | 9
```

try with a histogram, which should look similar.