Exercise 1.14: The accompanying data set consists of observations on shower-flow rate for a sample of $n = 129$ houses in Perth, Australia

a. Construct a stem-and-leaf display of the data.
Solution:

```
> stem(x)

The decimal point is at the |

  2 | 23
  3 | 2344567789
  4 | 01356889
  5 | 00001114455666789
  6 | 000012222334445666778999 9
  7 | 00012233455555668
  8 | 02233448
  9 | 012233335666788
 10 | 2344455688
 11 | 2335999
 12 | 37
 13 | 8
 14 | 36
 15 | 0035
 16 |
 17 |
 18 | 9
```

b. What is a typical, or representative flow rate?
Solution:

```
> fivenum(x)
Minimum  Lower Quartile  Median  Upper Quartile  Maximum
    2.2            5.6     7.0             9.6     18.9

> mean(x)
[1] 7.707752

> sd(x)
[1] 3.076844
```

I would say that a representative flow rate would be closer to the median at 7.0 since there is an outlier in 18.9 that is more than 3 standard deviations away from the mean.

c. Does the display appear to be highly concentrated or spread out?

Solution: Generally speaking this display appears to be highly concentrated with a small slight skew towards the right.

d Does the distribution of values appear to be reasonably symmetric?If not, how would you describe the departure from symmetry?

Solution: The data is does not appear to be symmetrical, since it seems to have a slight positive skew.

e Would you describe any observation as being far from the rest of the data (an outlier)?

Solution: I would describe the data point $x = 18.9$ as an outlier, since it is almost 4 standard deviations from the mean.

Exercise 1.18: Every corporation has a governing board og directors. The number of individuals on a board varies from one corporation to another. One of the authors of the article provided the accompanying data on the number of directors on each board in a random sample of 204 corporations.

a. Construct a histogram of the data based on relative frequencies and comment on any interesting features?
Solution:

c. Solution:

Exercise 1.22:

Exercise 1.38:

Exercise 1.42:

Exercise 1.44:

Exercise 1.50:

Exercise 1.56:

Exercise 2.4:

Exercise 2.9: