1. The time needed to assemble a particular piece of furniture with experience is normally distributed with a mean time of 43 minutes. If 68% of the assembly times are between 40 and 46 minutes, what is the value of the standard deviation? Suppose 99.7% of the assembly times are between 35 and 51 minutes and the mean is still 43 minutes. What would the value of the standard deviation be now? Suppose the time needed to assemble another piece of furniture is not normally distributed and that the mean assembly time is 28 minutes. What is the value of the standard deviation if at least 77% of the assembly times are between 24 and 32 minutes?
2. Environmentalists are concerned about emissions of sulphur dioxide into the air. The average number of days per year in which sulphur dioxide levels exceed 150 milligrams per cubic meter in Milan, Italy, is 29. The number of days per year in which emission limits are exceeded is normally distributed with a standard deviation of 4.0 days. What percentage of the years would average between 21 and 37 days of excess emissions of sulphur dioxide? What percentage of the years would exceed 37 days? What percentage of the years would exceed 41 days? In what percentage of the years would there be fewer than 25 days with excess sulphur dioxide emissions?
3. On a certain day the average closing price of a group of stocks on the New York Stock Exchange is $35 (to the nearest dollar). If the median value is $33 and the mode is $21, is the distribution of these stock prices skewed? If so, how?
4. The sales volumes for the top real estate brokerage firms in the United States for a recent year were analysed using descriptive statistics. The mean annual dollar volume for these firms was $5.51 billion, the median was $3.19 billion, and the standard deviation was $9.59 billion. Compute the value of the Pearsonian coefficient of skewness and discuss the meaning of it. Is the distribution skewed? If so, to what extent?
5. Construct a box-and-whisker plot on the following data. Do the data contain any outliers? Is the distribution of data skewed? Draw the various points of box-and whisker points, need not draw.
   1. 540 690 503 558 490 609 379 601 559 495 562 580 510 623 477 574 588 497 527 570 495 590 602 541
6. Shown here are the U.S. oil refineries with the largest capacity in terms of barrels per day according to the U.S. Energy Information Administration. Use these as population data and answer the questions.
   1. What are the values of the mean and the median?Compare the answers and state which you prefer as a measure of location for these data and why.
   2. What are the values of the range and interquartile range? How do they differ?
   3. What are the values of variance and standard deviation for these data?
   4. What is the *z* score for Pascagoula,Mississippi? What is the *z* score for Texas City,Texas? Interpret these *z* scores.
   5. Calculate the Pearsonian coefficient of skewness and comment on the skewness of this distribution.

