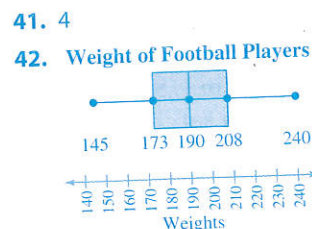
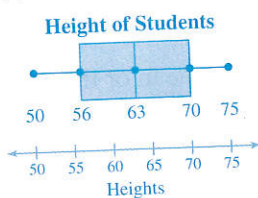


- 33. 30
- 34. 15
- 35. Sample mean  $\approx 2.5$   
Standard deviation  $\approx 1.2$
- 36. Sample mean = 2.4  
Standard deviation  $\approx 1.7$
- 37. 56
- 38. 70
- 39. 14
- 40. **Height of Students**



- 43. 23% scored higher than 68.
- 44. 88th percentile
- 45.  $z = 2.33$ , unusual
- 46.  $z = -1.5$ , not unusual
- 47.  $z = 1.25$ , not unusual
- 48.  $z = -2.125$ , unusual

- 33. The mean sale per customer for 40 customers at a grocery store is \$23.00, with a standard deviation of \$6.00. On the basis of Chebychev's Theorem, at least how many of the customers spent between \$11.00 and \$35.00?
- 34. The mean length of the first 20 space shuttle flights was about 7 days, and the standard deviation was about 2 days. On the basis of Chebychev's Theorem, at least how many of the flights lasted between 3 days and 11 days? (Source: NASA)
- 35. From a random sample of households, the number of television sets are listed. Find the sample mean and standard deviation of the data.

Number of televisions	0	1	2	3	4	5
Number of households	1	8	13	10	5	3

- 36. From a random sample of airplanes, the number of defects found in their fuselages are listed. Find the sample mean and standard deviation of the data.

Number of defects	0	1	2	3	4	5	6
Number of airplanes	4	5	2	9	1	3	1

**Section 2.5**

In Exercises 37–40, use the following data set. The data represent the heights (in inches) of students in a statistics class.

- 50 51 54 54 56 59 60 61 61 63  
64 65 68 69 70 70 71 71 75

- 37. Find the height that corresponds to the first quartile.
- 38. Find the height that corresponds to the third quartile.
- 39. Find the interquartile range.
- 40. Make a box-and-whisker plot of the data.
- 41. Find the interquartile range of the data from Exercise 14.
- 42. The weights (in pounds) of the defensive players on a high school football team are given. Make a box-and-whisker plot of the data.

173	145	205	192	197	227	156	240	172	185
208	185	190	167	212	228	190	184	195	

- 43. A student's test grade of 68 represents the 77th percentile of the grades. What percent of students scored higher than 68?
- 44. In 2004 there were 728 "oldies" radio stations in the United States. If one station finds that 84 stations have a larger daily audience than it does, what percentile does this station come closest to in the daily audience rankings? (Source: Radioinfo.com)

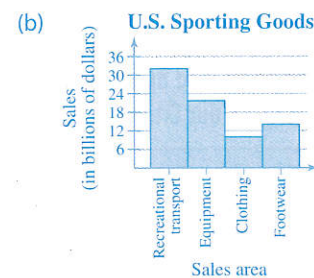
In Exercises 45–48, use the following information. The weights of 19 high school football players have a bell-shaped distribution, with a mean of 192 pounds and a standard deviation of 24 pounds. Use  $z$ -scores to determine if the weights of the following randomly selected football players are unusual.

- 45. 248 pounds
- 46. 156 pounds
- 47. 222 pounds
- 48. 141 pounds

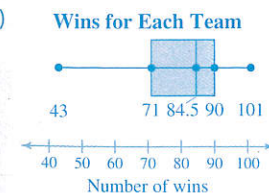
2

Chapter Quiz

- 1. See Odd Answers, page A56.
- 2. 125.2, 13.0
- 3. (a)



- 4. (a) 751.6, 784.5, none  
The mean best describes a typical salary because there are no outliers.
- (b) 575; 48,135.1; 219.4
- 5. Between \$125,000 and \$185,000
- 6. (a)  $z = 3.0$ , unusual  
(b)  $z \approx -6.67$ , very unusual  
(c)  $z \approx 1.33$   
(d)  $z = -2.2$ , unusual
- 7. (a) 71, 84.5, 90  
(b) 19



Take this quiz as you would take a quiz in class. After you are done, check your work against the answers given in the back of the book.

- DATA** 1. The data set is the number of minutes a sample of 25 people exercise each week.

108	139	120	123	120	132	123	131	131
157	150	124	111	101	135	119	116	117
127	128	139	119	118	114	127		

- (a) Make a frequency distribution of the data set using five classes. Include class limits, midpoints, frequencies, boundaries, relative frequencies, and cumulative frequencies.
- (b) Display the data using a frequency histogram and a frequency polygon on the same axes.
- (c) Display the data using a relative frequency histogram.
- (d) Describe the distribution's shape as symmetric, uniform, or skewed.
- (e) Display the data using a box-and-whisker plot.
- (f) Display the data using an ogive.

- 2. Use frequency distribution formulas to approximate the sample mean and standard deviation of the data set in Exercise 1.

- 3. U.S. sporting goods sales (in billions of dollars) can be classified in four areas: clothing (10.0), footwear (14.1), equipment (21.7), and recreational transport (32.1). Display the data using (a) a pie chart and (b) a Pareto chart. (Source: National Sporting Goods Association)

- 4. Weekly salaries (in dollars) for a sample of registered nurses are listed.

774	446	1019	795	908	667	444	960
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- (a) Find the mean, the median, and the mode of the salaries. Which best describes a typical salary?
- (b) Find the range, variance, and standard deviation of the data set. Interpret the results in the context of the real-life setting.

- 5. The mean price of new homes from a sample of houses is \$155,000 with a standard deviation of \$15,000. The data set has a bell-shaped distribution. Between what two prices do 95% of the houses fall?

- 6. Refer to the sample statistics from Exercise 5 and use  $z$ -scores to determine which, if any, of the following house prices is unusual.

- (a) \$200,000
- (b) \$55,000
- (c) \$175,000
- (d) \$122,000

- DATA** 7. The number of wins for each Major League Baseball team in 2003 are listed. (Source: Major League Baseball)

101	95	86	71	63	90	86	83	68	43
96	93	77	71	101	91	86	83	66	88
87	85	75	69	68	100	85	84	74	64

- (a) Find the quartiles of the data set.
- (b) Find the interquartile range.
- (c) Draw a box-and-whisker plot.