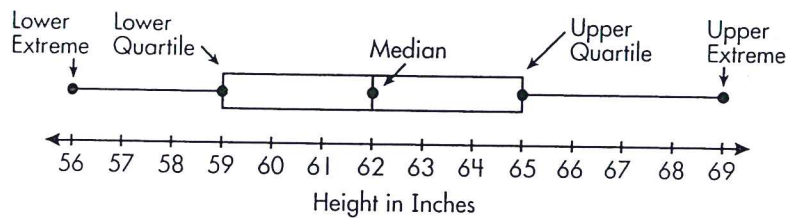


Lesson 6.9 Box-and-Whisker Plots

A **box-and-whisker plot** is a specific way to represent a set of data. The middle 50% of the data set is indicated by a rectangle, divided at the median of the data set. The lowest and highest 25% are indicated by "whiskers," or lines that branch out from either side of the rectangle.

Mavis used the data she collected to create this box-and-whisker plot. It can be compared to the line plot on the previous page. A box-and-whisker plot does not show the number of data points. It cannot be used to find the mean or mode of the data.

Height of My Classmates

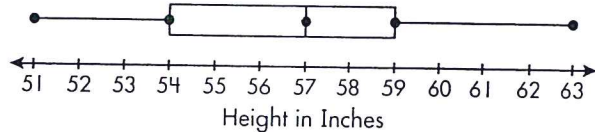


What is the range? (Subtract the lower extreme from the upper extreme.) The range is 13 inches. Between which two numbers are the middle 50% of the students' heights? Look at the two ends of the box. The middle 50% are between 59 and 65. The **interquartile range** is $65 - 59$, or 6.

Mavis polled 6th and 7th graders on their height. She made these box-and-whisker plots with the data. Interpret each one to answer the questions.

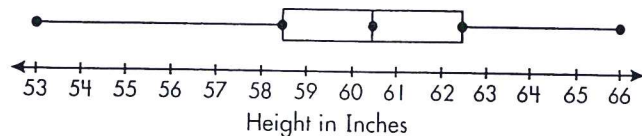
1. What is the interquartile range in the 6th grade data? _____
2. What is the median height in 6th grade? _____
3. Between which two numbers are the lowest 25% of students' heights in 6th grade? _____

6th Grade Heights



4. What height is at the upper extreme in the 7th grade? _____
5. What is the range of heights in 7th grade? _____
6. What is the interquartile range in the 7th grade data? _____

7th Grade Heights





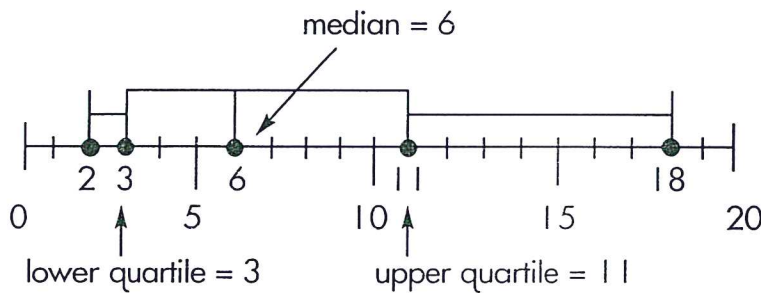
Box Plots

A **box-and-whisker plot** can be used to show the spread of a set of data. The plot displays the median, the quartiles, and the range of the data values.

Data: 2, 2, 3, 3, 4, 6, 6, 7, 10, 10, 11, 12, 12, 18

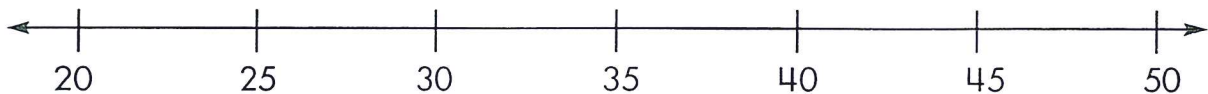
Follow these steps to draw the box-and-whisker plot.

1. Write the values in numerical order.
2. Find the median and 1st and 3rd quartiles.
3. Make a number line with an even scale.
4. Draw a box between the first and third quartiles.
5. Draw a vertical line at the median.
6. Draw whiskers from the box to the extremes.

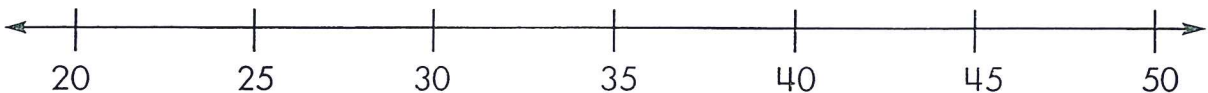


► Repeat steps 1-6 to make a box-and-whisker plot for each set of data.

A. 20, 34, 21, 24, 22, 25, 30, 30, 25, 40, 49, 26, 35, 36, 20



B. 22, 27, 30, 32, 40, 28, 49, 20, 28, 26, 23, 26, 26, 25, 24



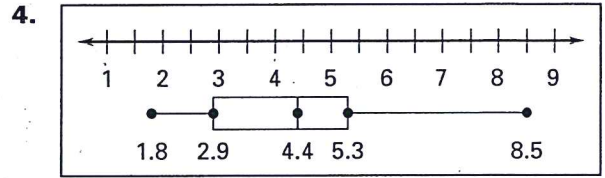
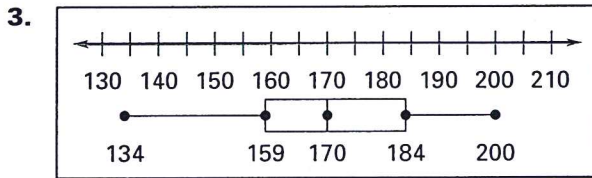
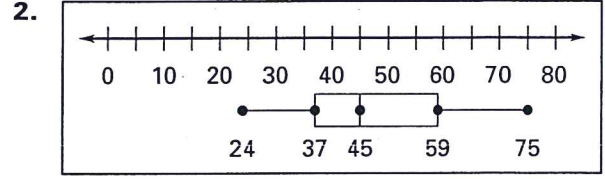
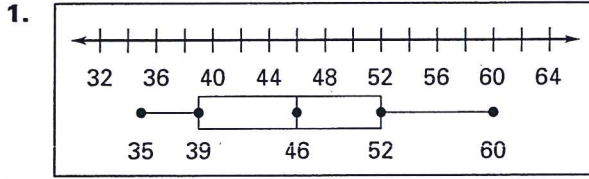
C. Compare and contrast the two box-and-whisker plots.

LESSON
13.8

Practice

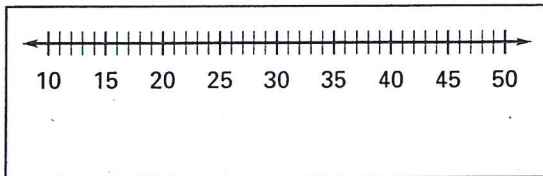
For use with pages 887–893

Identify the median, quartiles, and interquartile range of the data from the box-and-whisker plot.

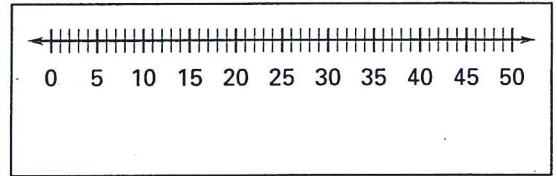


Make a box-and-whisker plot of the data.

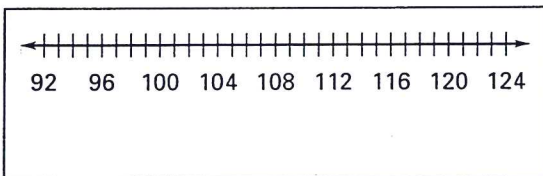
5. 11, 33, 39, 27, 25, 31, 28, 33, 31, 49



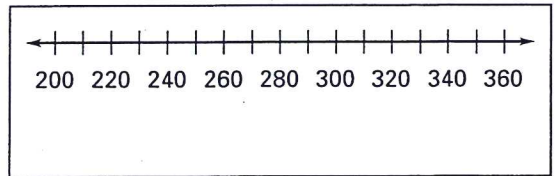
6. 10, 16, 18, 10, 13, 7, 10, 13, 2, 48



7. 108, 124, 92, 110, 117, 102, 100, 98, 120



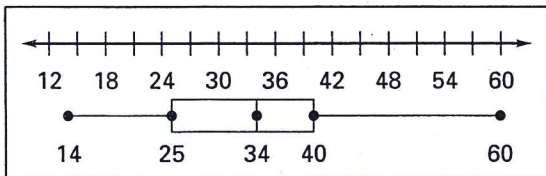
8. 350, 225, 300, 314, 210, 321, 275, 290, 310



LESSON
13.8

Practice *continued*
For use with pages 887–893.

In Exercises 9 and 10, use the box-and-whisker plot.

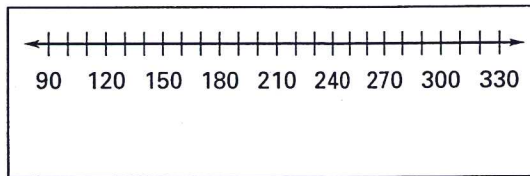
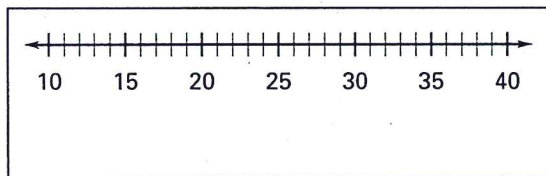


9. About what percent of the data are greater than 25?

10. About what percent of the data are less than 34?

Make a box-and-whisker plot of the data. Identify any outliers.

11. 17, 38, 22, 15, 13, 24, 18, 10, 20, 13, 17, 12 12. 134, 115, 105, 100, 115, 134, 200, 310, 124



13. 45, 30, 30, 17, 15, 27, 23, 25, 26, 30, 33, 30 14. 730, 640, 500, 719, 620, 645, 740, 703, 690

