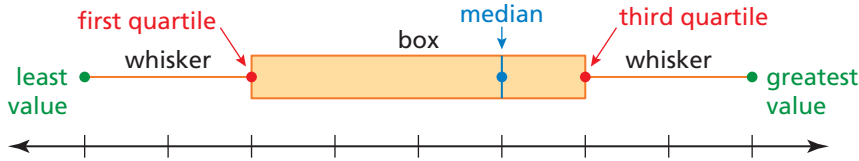# Box-and-Whisker Plots

A **box-and-whisker plot** represents a data set along a number line by using the least value, the greatest value, and the quartiles of the data. The five numbers that make up the box-and-whisker plot are called the **five-number summary** of the data set.

You can use a box-and-whisker plot to identify the shape of a distribution.

Skewed Left	Symmetric	Skewed Right
The left whisker is longer than the right whisker.	The whiskers are about the same length.	The right whisker is longer than the left whisker.
Most of the data are on the right side of the plot.	The median is in the middle of the plot.	Most of the data are on the left side of the plot.

Example 1 **The data set shows the prices (in dollars) of lacrosse helmets. Make a box-and-whisker plot that represents the data. Describe the distribution.**

125, 120, 250, 110, 190, 220, 145, 260, 240, 150, 170, 200

**Step 1** Order the data.   110   120   125   145   150   170   190   200   220   240   250   260

Find the median and the quartiles.

> first quartile, 135   median, 180   third quartile, 230

Step 2 Draw a number line that includes the least value, 110, and the greatest value, 260. Graph points above the number line that represent the five-number summary.

Step 3 Draw a box using the quartiles. Draw a line through the median. Draw whiskers from the box to the least and the greatest values.
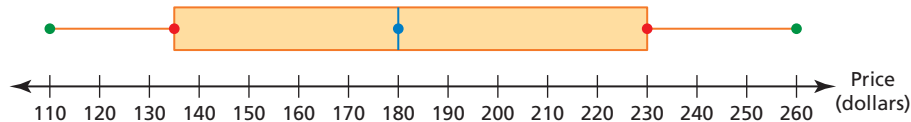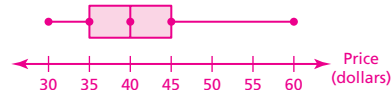

▶ The whiskers are about the same length and the median is in the middle of the plot. So, the distribution is symmetric.

Practice

Check your answers at BigIdeasMath.com.

Make a box-and-whisker plot that represents the data. Describe the distribution.

1. Video game prices (in dollars):
   45, 40, 50, 35, 30, 40, 40, 30, 45, 60

   skewed right

2. Exam scores: 79, 86, 100, 82, 94, 98, 96, 86, 90, 92, 62, 84

   skewed left