NAME _____ DATE _____

7-7

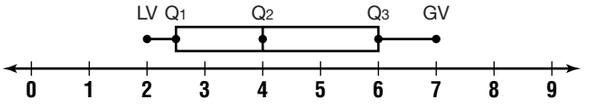
Box-and-Whisker Plots (Pages 427–434)

Drawing Box-and-Whisker Plots	1. Arrange data in numerical order. 2. Compute the *quartiles*: Q_1, Q_2, and Q_3. The *median* (Q_2) is the middle value of the data. The *upper quartile* (Q_1) is the median of the lower half of the data and the *upper quartile* (Q_3) is the median of the upper half of the data. 3. Find the **extreme values**. These are the *least value* (LV) and the *greatest value* (GV) of the data. 4. Draw a number line and choose a scale that includes the extreme values. Above the number line, draw dots corresponding to LV, Q_1, Q_2, Q_3, and GV. Draw a box to designate the data between Q_1 and Q_3. Draw a vertical line through Q_2. 5. Draw a segment from Q_1 to LV and from Q_3 and GV. These two segments are the **whiskers** of the plot.

EXAMPLE

Draw a box-and-whisker plot for this data: 2, 2, 3, 4, 4, 5, 6, 6, 7.

The median, or Q_2, is 4. The LV is 2 and GV is 7. Q_1 is $(2 + 3) \div 2$ or 2.5. Q_3 is $(6 + 6) \div 2$ or 6.



PRACTICE

1. Recreation The table below shows the number of state parks in each of the Midwest states.

State Parks in Midwest States													
State	**No.**	**State**	**No.**	**State**	**No.**	**State**	**No.**	**State**	**No.**	**State**	**No.**	**State**	**No.**
IA	53	IL	62	IN	23	KS	24	MI	68	MN	66	MO	47
ND	11	NE	8	OH	73	OK	47	SD	11	WI	51		

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

b. Which half of the data is more widely dispersed?

2. Entertainment The running time in minutes of early and recent Academy Award Best Picture winners are listed in the table below.

1928–1947	139, 104, 103, 130, 112, 110, 105, 132, 179, 117, 127, 222, 130, 118, 139, 102, 126, 100, 170, 118
1980–1999	121, 122, 197, 162, 178, 142, 195, 131, 118, 181, 99, 128, 140, 113, 161, 158, 132, 188, 123, 124

a. Make a box-and-whisker plot of the data for each group of years.

b. Did the lengths vary more in early or recent years?

3. **Standardized Test Practice** About how much of the data does the box contain in a box-and-whisker plot?

A one quarter **B** one half **C** all of the data **D** none of these

Answers: **1a.** See Answer Key. **1b.** lower half **2a.** See Answer Key. **2b.** recent years **3.** B