

12-3 Box-and-Whisker Plots (Pages 617–621)

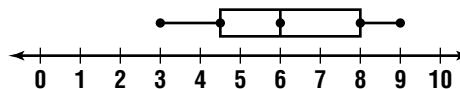
One way to display data is with a **box-and-whisker plot**. This kind of plot summarizes data using the median, the upper and lower quartiles, and the highest and lowest, or extreme, values.

Drawing a Box-and-Whisker Plot	<ol style="list-style-type: none"> 1. Draw a number line for the range of the values. Above the number line, mark points for the extreme, median, and quartile values. 2. Draw a box that contains the quartile values. Draw a vertical line through the median value. Then extend the whiskers from each quartile to the extreme data points.
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Example

Draw a box-and-whisker plot for this data: 5, 7, 3, 9, 6, 9, 4, 6, 7

1. Arrange the data in order from least to greatest (3, 4, 5, 6, 6, 7, 7, 9, 9) and find the extreme (3 and 9), the median (6), the upper quartile (8) and the lower quartile (4.5). Draw a number line and mark these points.
2. Draw a box that contains the quartile values and a vertical line through the median. Then extend the whiskers from each quartile to the extremes.



Try These Together

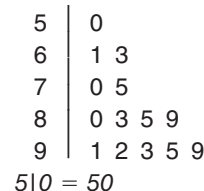
1. What is the median for the plot shown in PRACTICE below?	2. What is the upper quartile for the plot shown in PRACTICE below?
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HINT: The median is the point that divides the data in half. The upper quartile is the middle of the upper half.

Practice

Use the stem-and-leaf plot at the right to answer each question.

3. What is the lower quartile?
4. Make a box-and-whisker plot of the data.
5. What is the interquartile range?
6. What are the extremes?
7. To the nearest 25%, what percent of the data is represented by each whisker?
8. Why isn't the median in the middle of the box?
9. What percent of data does the box represent?
10. To the nearest 25%, what percent of data is above the upper quartile?



11. Standardized Test Practice

What is the best way to display the table of world population data?

Year	1	1000	1250	1500	1750	1800	1850	1900	1950
Billion	0.30	0.31	0.40	0.50	0.79	0.98	1.26	1.65	2.52

- A** circle graph **B** stem-and-leaf plot **C** box-and-whisker plot **D** line graph

Answers: 1. 84 2. 92 3. 70 4. See Answer Key. 5. 22 6. 50 99 7. 25% 8. The median isn't necessarily the mean (average) of the upper and lower quartiles; it is the midpoint of the data between the upper and lower quartiles. 9. 50% 10. 25% 11. D