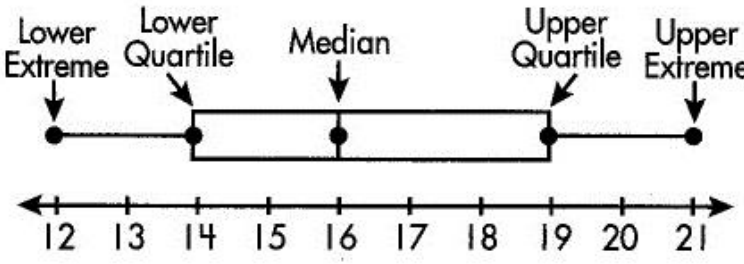
9.4

Choosing a Data Display (Part 2)

A **box-and-whisker** plot displays data along a number line. Quartiles are used to divide the data into four equal parts. Each quartile is 25% of the number of items. The upper and lower quartiles, representing 50% of the data, form the box.
The upper extreme (highest value) and lower extreme (lowest value) form the whiskers.



This box-and-whisker plot represents the following data:

12, 13, 14, 14, 15, 16, 17, 18, 19, 19, 21

Upper Extreme: 21

Lower Extreme: 12

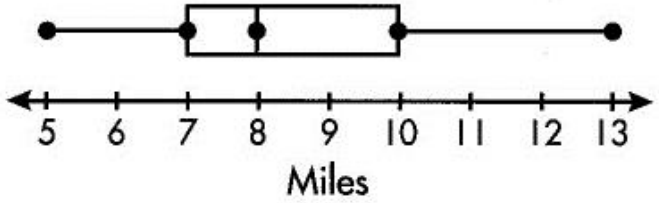
Middle Quartile (median): 16

Upper Quartile (median of upper half): 19

Lower Quartile (median of lower half): 14

Use the box-and-whisker plots below to answer the following questions.

Miles Walked in Walk-a-Thon



1. What is the median number of miles walked? _____

2. What are the lowest and highest numbers of miles walked?

lowest: _____ highest: _____

3. If 126 people participated in the walkathon, how many people walked 7–10 miles? _____

4. What percentage of the people walked more than 10 miles? _____

5. What is the median number of books read? _____

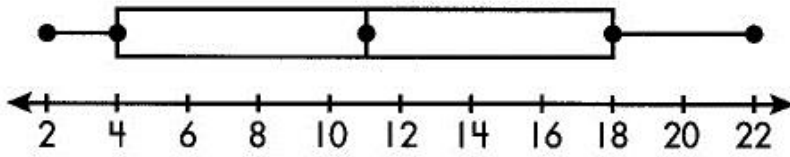
6. What is the upper quartile? _____

7. What percentage of the people who responded to the survey read 4 or fewer books? _____

8. What is the most number of books anyone read? _____

9. If 82 people responded to this survey, how many read from 4 to 18 books? _____

Books Read Over the Summer



Key Idea

Data Display	What does it do?
Pictograph	shows data using pictures
Bar Graph	shows data in specific categories
Circle G	
Line Gra	
Histogra	
Stem-an	
Box-and	
Dot Plot	shows the number of times each value occurs in a data set
Scatter Plot	shows the relationship between two data sets by using ordered pairs in a coordinate plane

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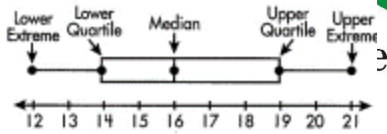

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Example 1

Choose an appropriate data display for the situation. Explain your reasoning.

a. the number of students in a marching band each year

b. a comparison of people's shoe sizes and their heights

On Your Own

Choose an appropriate data display for the situation. Explain your reasoning.

1. the population of the United States divided into age groups

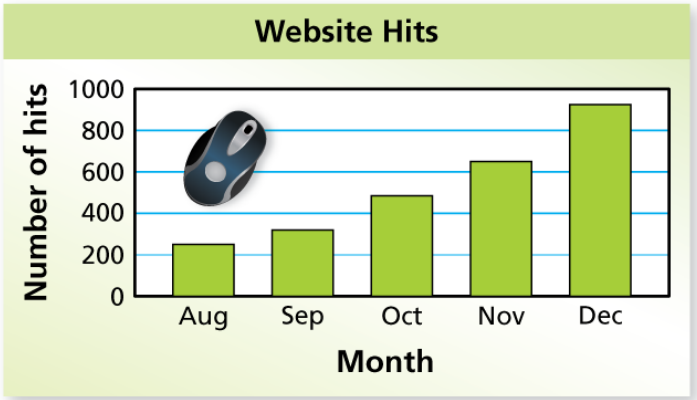
2. the percents of students in your school who play basketball, football, soccer, or lacrosse

Example 2

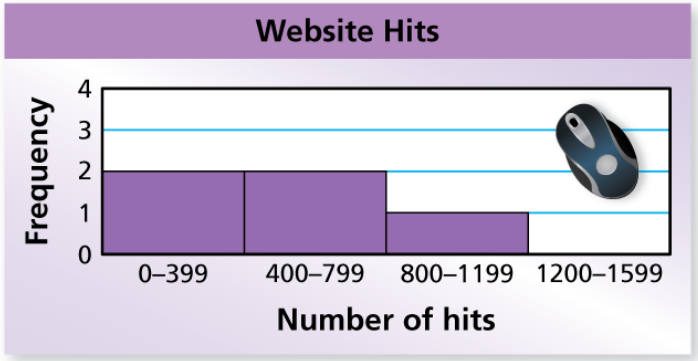
You record the number of hits for your school's new website for 5 months. Tell whether the data display is appropriate for representing how the number of hits changed during the 5 months. Explain your reasoning.

Month	Hits
August	250
September	320
October	485
November	650
December	925

a.



b.



Example 2 Cont.

c.

On Your Own

Tell whether the data display is appropriate for representing the data in Example 2. Explain your reasoning.

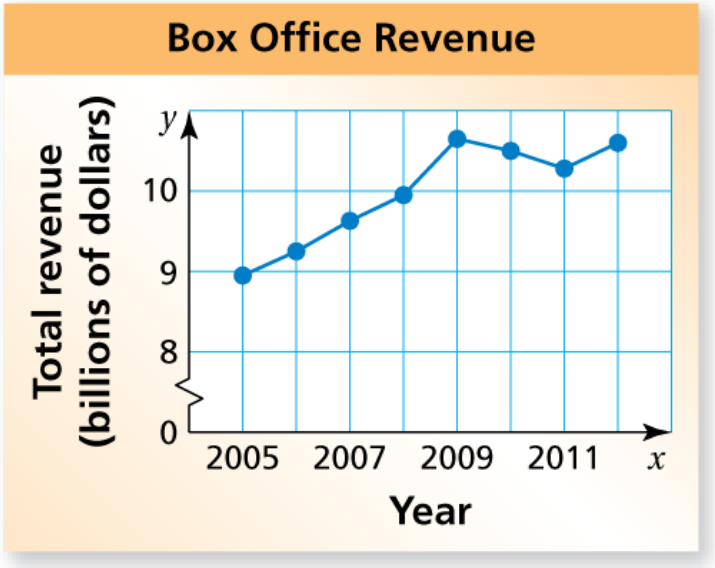
3. dot plot

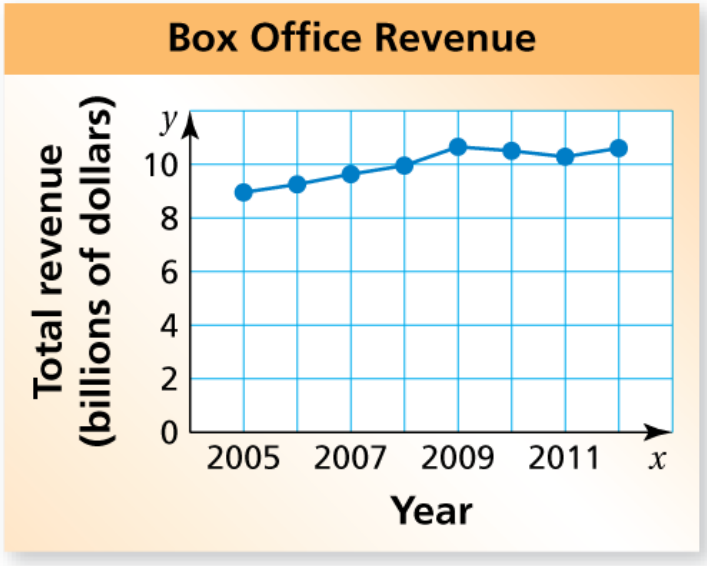
4. circle graph

5. stem-and-leaf plot

Example 3

Which line graph is misleading? Explain.





On Your Own

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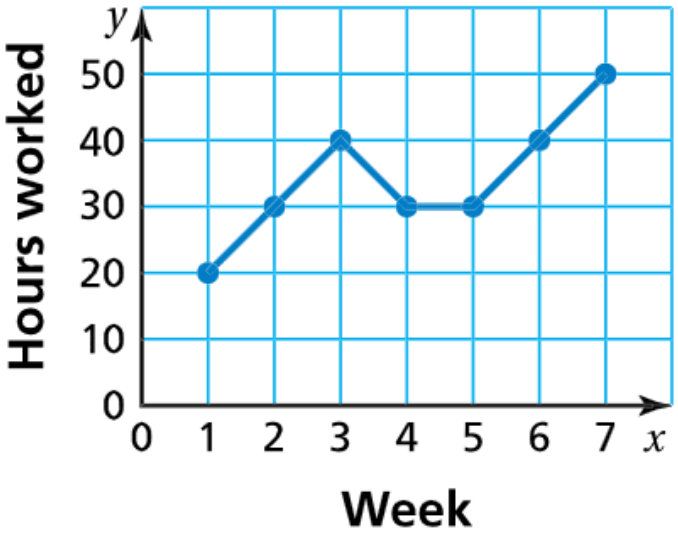
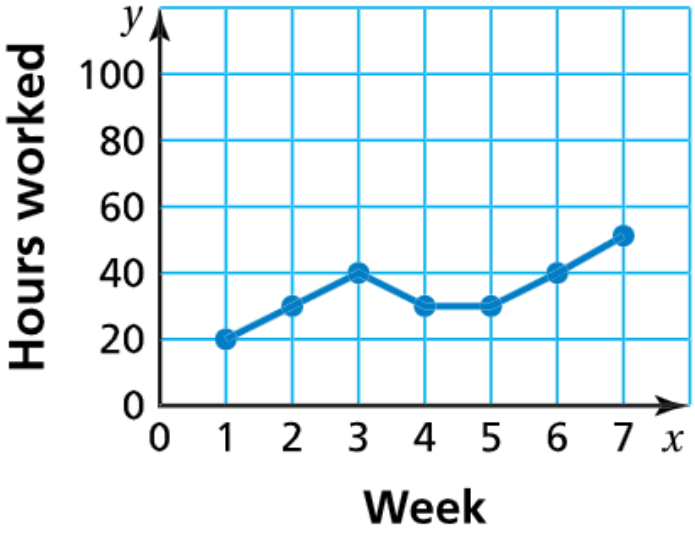
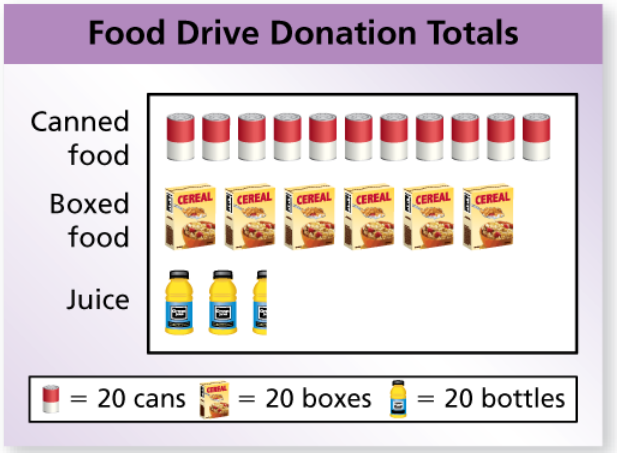




Example 4



A volunteer concludes that the numbers of cans of food and boxes of food donated were about the same. Is this conclusion accurate? Explain.

On Your Own

Explain why the data display is misleading.