Chapter 9

Review

Data Analysis

Interpreting Different Types of Graphs

Do Now

Find the mean, median, mode, and range.

33, 76, 86, 92, 86

Mean = _____

Median = _____

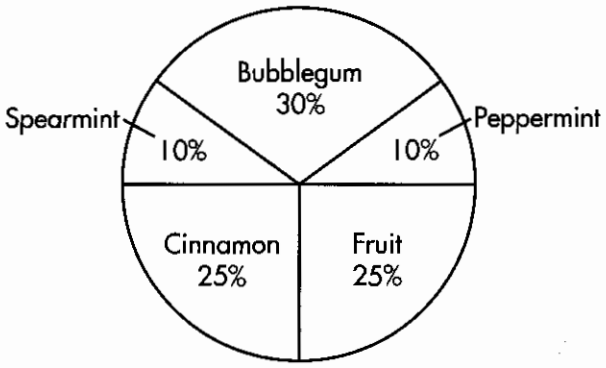
Mode = _____

Range = _____

NAME _____

Lesson 9.4 Circle Graphs

A **circle graph** shows the relationship of parts to a whole. The circle is divided into sectors which add up to 100%. The sectors are determined by the central angles, and the sum of all those angles is 360°.



Favorite Gum Flavor

This circle graph shows the favorite gum flavor of 400 people. The sectors show the percent who prefer each flavor.

Use the circle graph above to answer each question.

1. Which flavor is preferred by the most people? _____
2. How many people prefer spearmint? _____
3. How many people prefer cinnamon? _____
4. Which flavor is preferred by the same number of people who prefer cinnamon? _____
5. Which two flavors combined account for exactly half of the people? _____
6. How many people prefer bubblegum? _____
7. What is the measure of the angle for the peppermint sector of the graph? _____
8. What is the measure of the angle for the fruit sector of the graph? _____
9. What is the measure of the angle for the bubblegum sector of the graph? _____

NAME _____

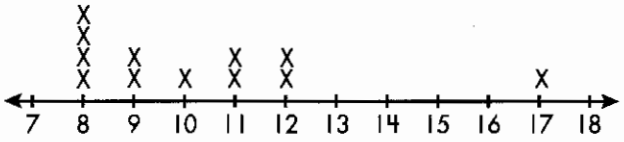
Lesson 9.9 Line Plots

A **line plot** is a graph that shows the frequency of data on a number line. Line plots make it easy to identify the mode, range, and any outliers in a data set. **Outliers** are data points that are much larger or smaller than other values.

To make a line plot, draw a number line from the least to the greatest value in the number set. Then, make an x above each number every time it appears in the set.

Make a line plot for the following data:

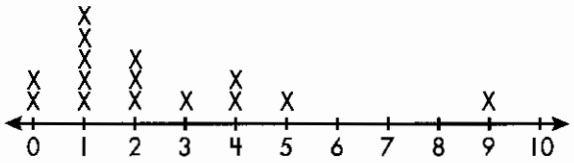
8, 9, 11, 8, 10, 11, 8, 9, 12, 8, 17, 12



The mode is 8. The range is 17 − 8 = 9.
17 is an outlier.

Answer the questions about the line plots below.

Number of Siblings



1. How many people responded to the sibling survey? _____

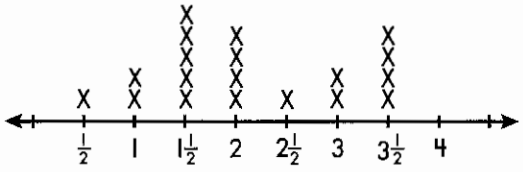
2. What is the mode of the sibling survey? What is the range?

   mode: _____ range: _____

3. How many people have 3 or more siblings? _____

4. What number is an outlier on the sibling survey? _____

Hours Studying For Test



5. How many people responded to the test survey? _____

6. What is the mode of the test survey? What is the range?

   mode: _____ range: _____

7. How many people studied 2 or fewer hours? _____

8. How many people studied 4 or more hours? _____

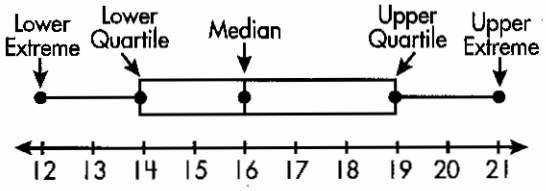
9. Did more people study 2 or more hours or less than 2 hours?

   More people studied _____ hours.

NAME _____

Lesson 9.10 Box-and-Whisker Plots

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

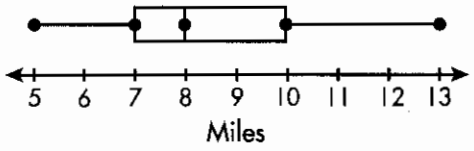
Middle Quartile (median): 16

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? _____

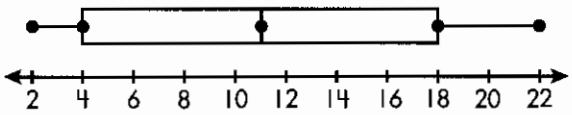
2. What are the lowest and highest numbers of miles walked?

   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? _____

Books Read Over the Summer



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? _____

Stem-and-Leaf Plots

A **stem-and-leaf** plot is used to arrange data in order from least to greatest. It is displayed in two columns. The right column shows the **leaves**—the ones digit of each number. The other digits form the **stems** and are shown in the left column. The **key** explains how to read the plot.

Use the following data to create a stem-and-leaf plot.

71, 73, 87, 106, 95, 73, 86,
99, 104, 82, 93, 74, 101, 90

Stem	Leaves
7	1 3 3 4
8	2 6 7
9	0 3 5 9
10	1 4 6

Key: 7 | 1 = 71

Use the following stem and leaf plot:

1) What is the least value?

2) What is the greatest value?

3) What is the median?

2	0 1 1 3
3	5 7 9
4	1 8
5	0 2 3
6	4 6 6 8

6 | 4 represents 64

Stem-and-Leaf Plots

The list below are the grades of 20 students on a math test.

93%, 84%, 100%, 92%, 66%, 89%, 78%, 52%, 71%, 85%, 83%,
95%, 81%, 80%, 79%, 67%, 59%, 90%, 85%, 77%

4) What is the least value?

5) What is the greatest value?

6) What is the median?

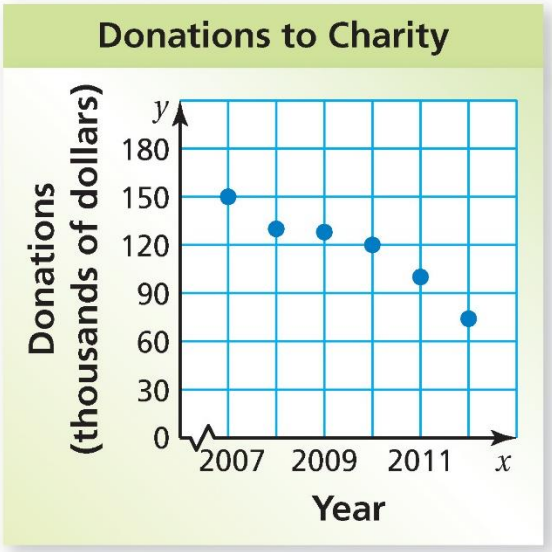
9.1 – Scatter Plots

1) CHARITY The scatter plot shows the amount of money donated to a charity from 2007 to 2012. *(Section 9.1)*

a. In what year did the charity receive $150,000?

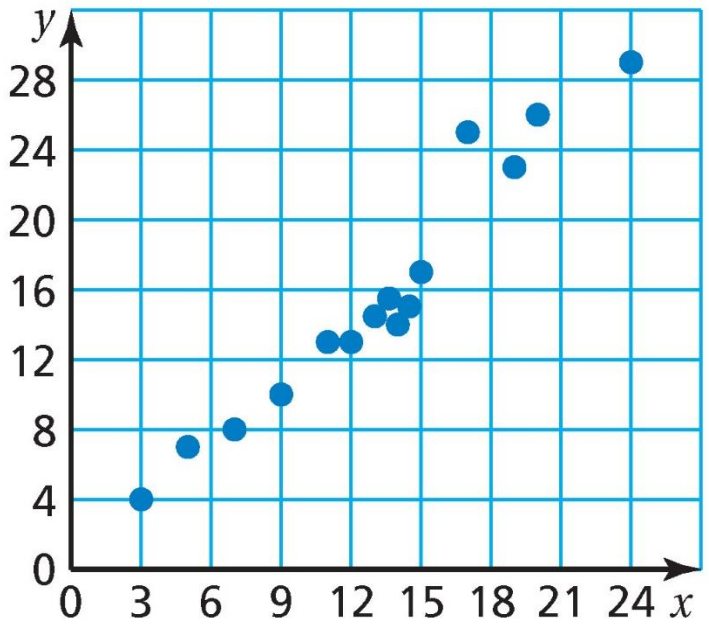
b. How much did the charity receive in 2010?

c. Describe the relationship shown by the data.



9.1 – Scatter Plots

2) Describe the relationship between the data. Identify any outliers, gaps, or clusters.



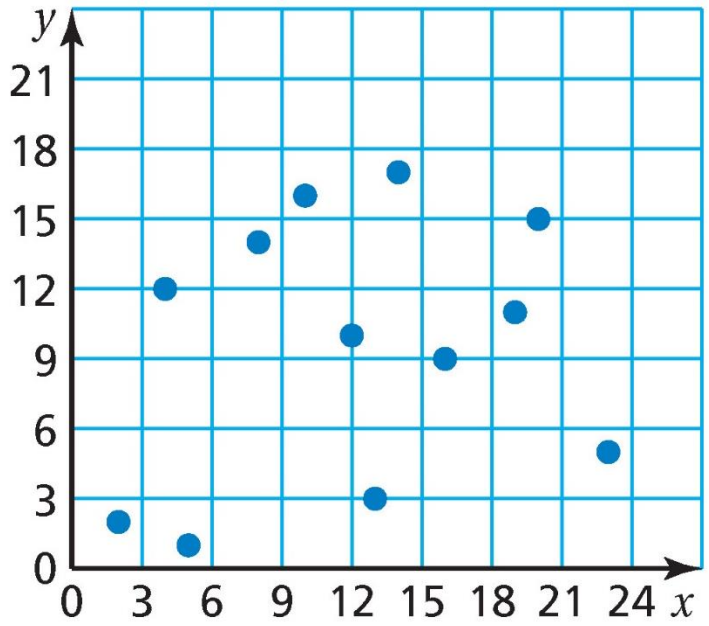
Outliers

Gaps

Clusters

9.1 – Scatter Plots

3) Describe the relationship between the data. Identify any outliers, gaps, or clusters.



Outliers

Gaps

Clusters

9.2 – Lines of Fit

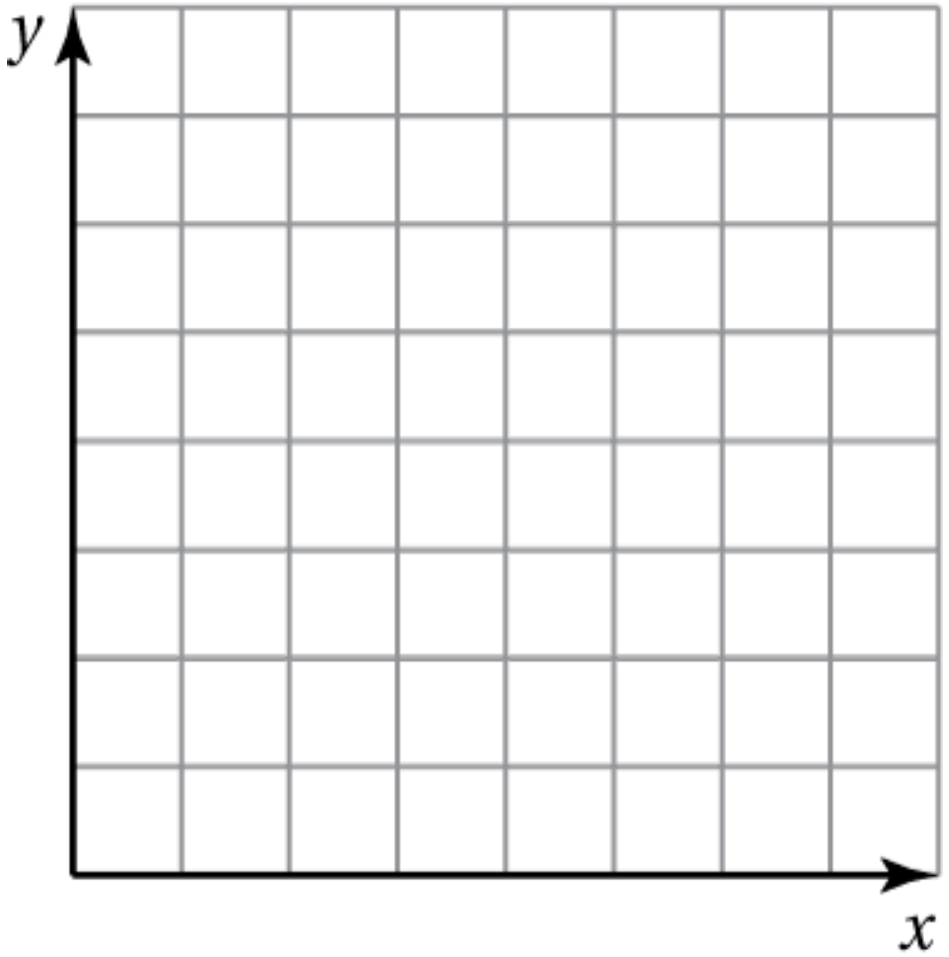
4) BLUEBERRIES The table shows the weights y of x pints of blueberries.

Number of Pints, x	0	1	2	3	4	5
Weight (pounds), y	0	0.8	1.50	2.20	3.0	3.75

a) Graph the data in the table.

b) Draw a line that you think best approximates the points.

c) Write an equation for your line.



9.2 – Lines of Fit

4) **BLUEBERRIES** The table shows the weights y of x pints of blueberries.

Number of Pints, x	0	1	2	3	4	5
Weight (pounds), y	0	0.8	1.50	2.20	3.0	3.75

d) Use the equation to predict the weight of 10 pints of blueberries.

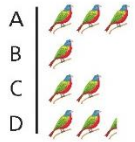
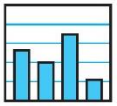
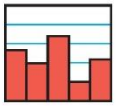
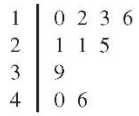
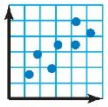
e) Blueberries cost $2.25 per pound. How much do 10 pints of blueberries cost?

9.3 – Two Way Tables

5) **RECYCLING** The results of a recycling survey are shown in the two-way table. Find and interpret the marginal frequencies. *(Section 9.3)*

		Recycle	
		Yes	No
Gender	Female	28	9
	Male	24	14

9.4 – Choosing a Data Display

Data Display	What does it do?
Pictograph	shows data using pictures 
Bar Graph	shows data in specific categories 
Circle Graph	shows data as parts of a whole 
Line Graph	shows how data change over time 
Histogram	shows frequencies of data values in intervals of the same size 
Stem-and-Leaf Plot	orders numerical data and shows how they are distributed 
Box-and-Whisker Plot	shows the variability of a data set by using quartiles 
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 

9.4 – Choosing a Data Display

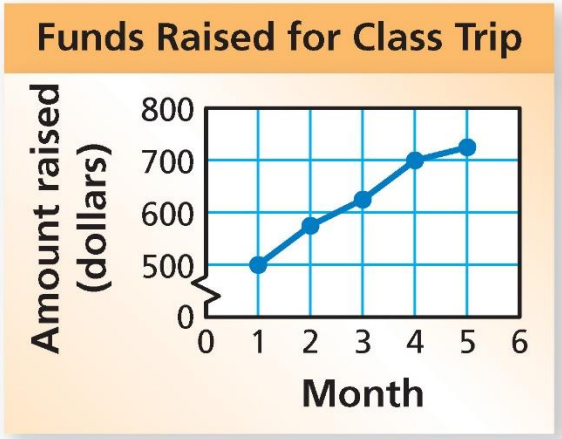
Choose an appropriate data display for the situation. Explain your reasoning.

6) the percent of band students in each section of instruments

7) a company's profit for each week

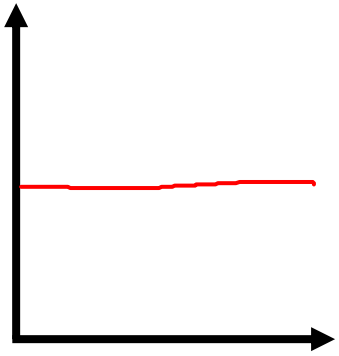
9.4 – Choosing a Data Display

8)

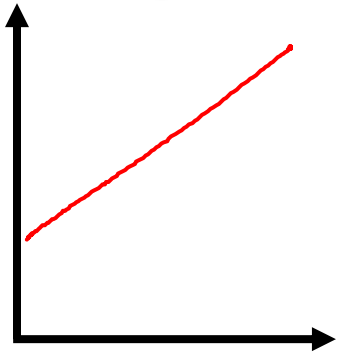


FUNDRAISER The line graph shows the amount of money that the eighth-grade students at a school raised each month to pay for a class trip. Is the graph misleading? Explain. *(Section 9.4)*

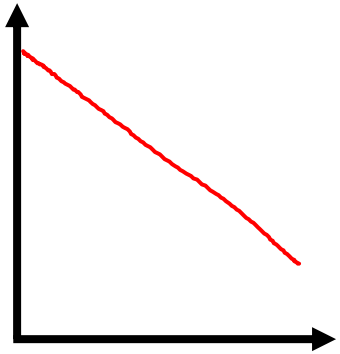
6.5 – Analyzing and Sketching Graphs



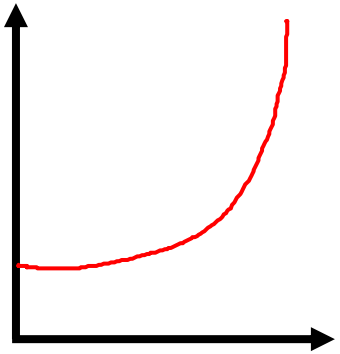
Constant



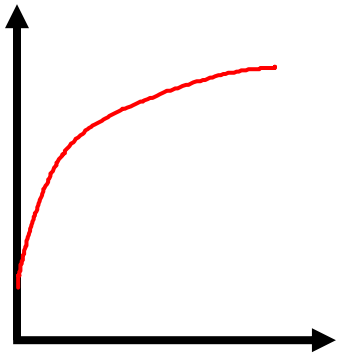
Increasing at a constant rate



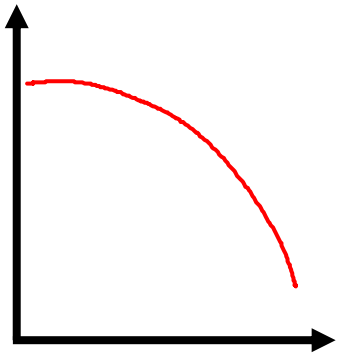
Decreasing at a constant rate



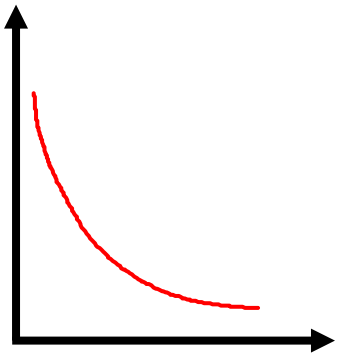
Increasing at an increasing rate



Increasing at an decreasing rate



Decreasing at an increasing rate



Decreasing at an decreasing rate

6.5 – Analyzing and Sketching Graphs

You are snowboarding down a hill. Sketch a graph that represents the situation

9) You gradually increase your speed at a constant rate over time but fall about halfway down the hill. You take a short break, then get up, and gradually increase your speed again.

10) You gradually increase your speed at a constant rate over time. You come to a steep section of the hill and rapidly increase your speed at a constant rate. You then decrease your speed at a constant rate until you come to a stop.