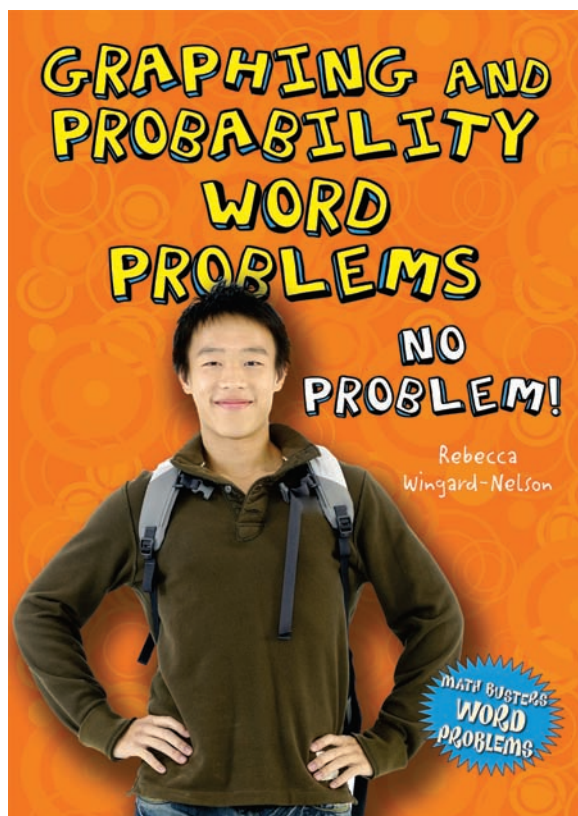


## Math Busters Word Problems Reproducible Worksheets

Reproducible Worksheets  
for:

# Graphing and Probability Word Problems No Problem!

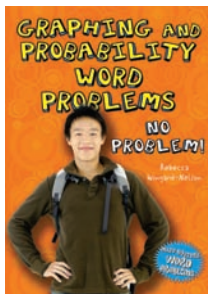


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# Math Busters Word Problems Reproducible Worksheets

Reproducible Worksheets for:

## Graphing and Probability Word Problems No Problem!



These worksheets practice math concepts explained in **Graphing and Probability Word Problems: No Problem!** (ISBN: 978-0-7660-3372-6), written by **Rebecca Wingard-Nelson**.

**Math Busters Word Problems** reproducible worksheets are designed to help teachers, parents, and tutors use the books from the **Math Busters Word Problems** series in the classroom and the home. The answers to the problems are contained in the Answers section starting on page 56.

Teachers, librarians, tutors, and parents are granted permission and encouraged to make photocopies of these worksheets.

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Name \_\_\_\_\_

Date \_\_\_\_\_

## Problem-Solving Steps

1. What are the four problem-solving steps?
2. What can you do to help yourself understand a question?
3. Name at least three plans you can use to solve math problems.
4. What should you do if your plan for solving a problem does not work?
5. How can reviewing the problem after you have an answer help you in the future?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Problem-Solving Steps

**Karen has a purple skirt, a purple pair of dress pants, and a purple pair of jeans. She has three tops that match any of the bottoms. How many different outfits can Karen match with her purple bottoms?**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Is the math correct?*

*What other plan could you use to solve this problem?*

Name \_\_\_\_\_

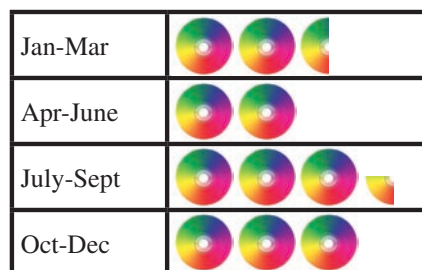
Date \_\_\_\_\_

## Read a Graph

About how many songs did the Beach family download between January and March?

Beach Family Music Downloads

 = 100 songs



Read and understand the problem.  
*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

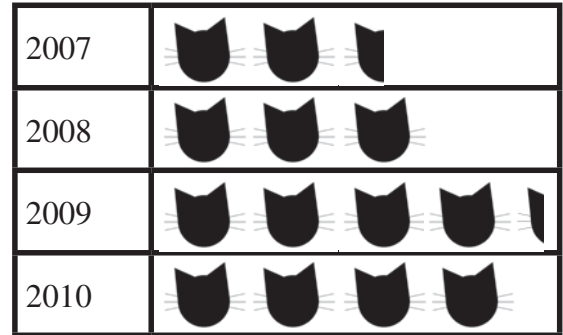
Date \_\_\_\_\_

## Read a Graph

About how many adult cats were adopted in 2008?

Adult Cat Adoptions

 = 150 adoptions



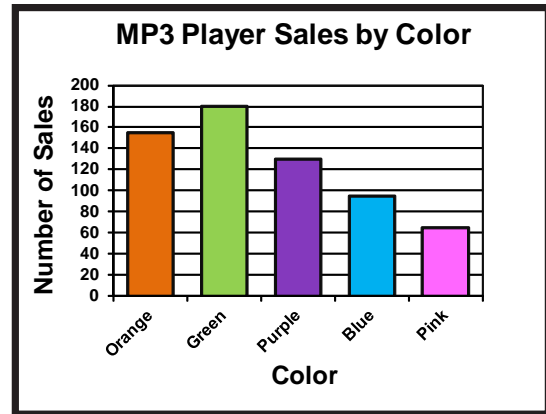
About how many more adult cats were adopted in 2008 than were adopted in 2010?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Bar Graphs

The newest MP3 player was released in five colors. One store kept track of sales by color for one month and graphed the data. Which color had the least number of sales?



Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

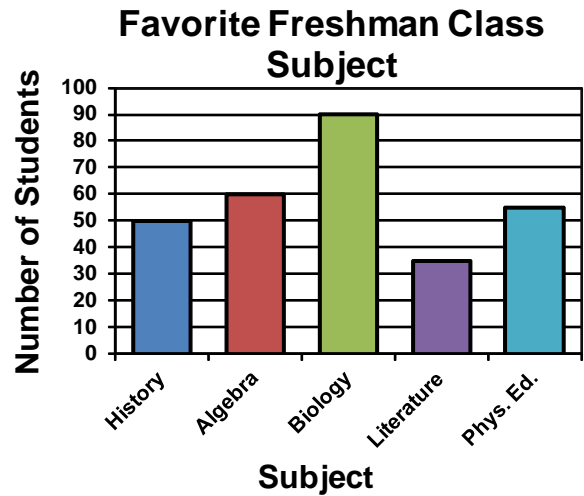
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Name \_\_\_\_\_

Date \_\_\_\_\_

## Bar Graphs

About how many students chose Algebra as their favorite subject?



Which subject did the least number of students choose as their favorite? Which subject was chosen by the most students?



Name \_\_\_\_\_

Date \_\_\_\_\_

## Histograms

**In how many games were 30 or more points scored?**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

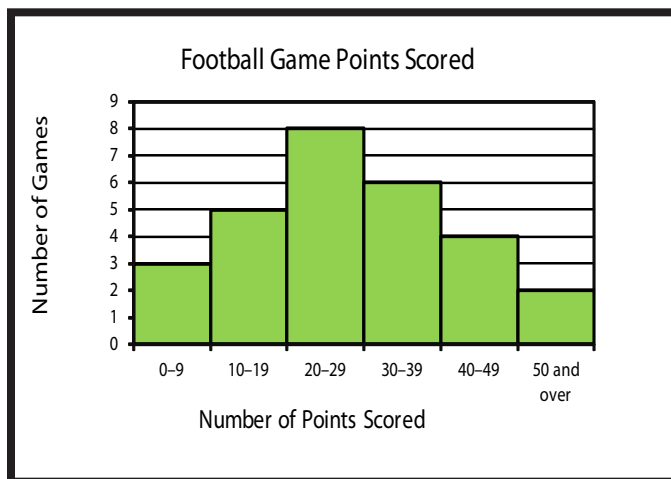
*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

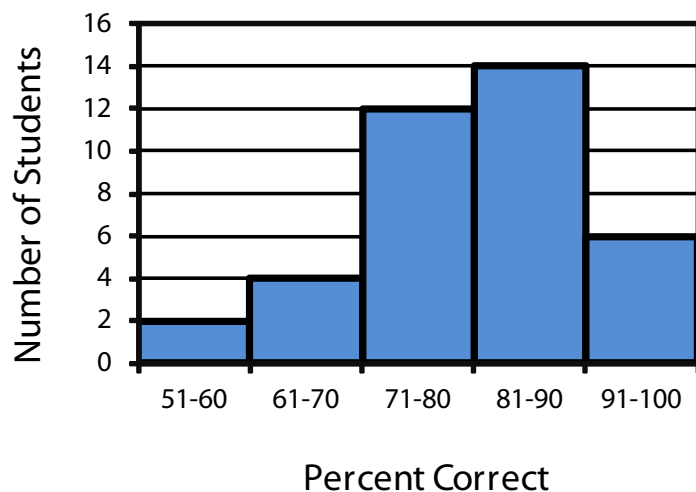
*Did your plan work for this problem?*



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# Histograms

## Test Scores



According to the graph, how many students had a test score higher than 90%?

Students with a score of 70 or lower must take a second exam on the same material. How many students must take the second exam?

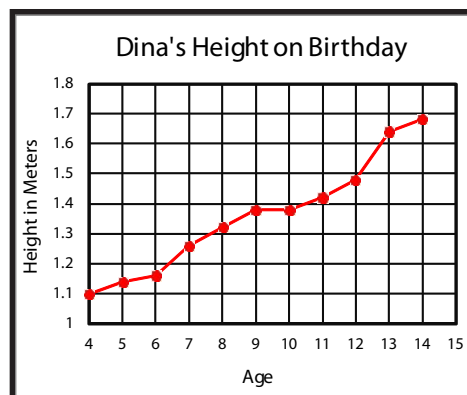
Name \_\_\_\_\_

Date \_\_\_\_\_

## Line Graphs

**Use the line graph to determine between which two birthdays Dina grew the least.**

Read and understand the problem.  
*What does the problem ask you to find?*



*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

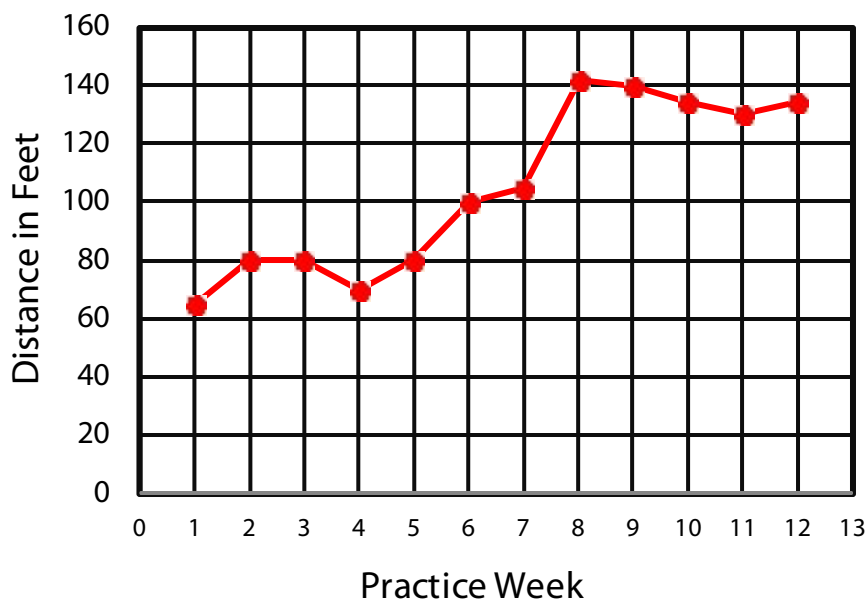
*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

## Line Graphs

### Average Discus Distance



Griffin kept track of his average discus throwing distance during practice. When did he show the greatest improvement?

How many weeks did Griffin show no improvement in his throwing distance?

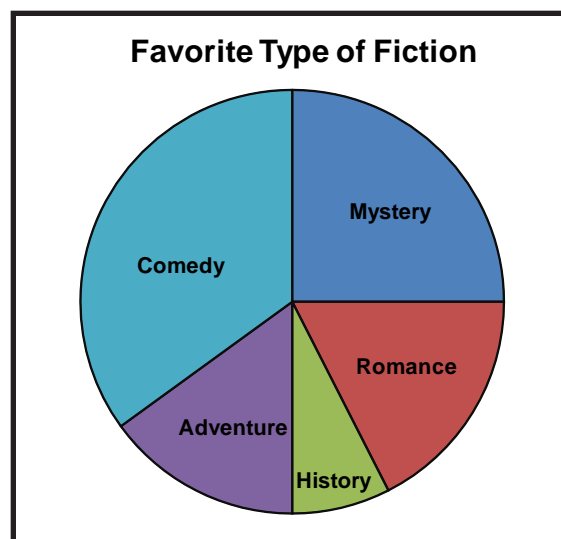
Name \_\_\_\_\_

Date \_\_\_\_\_

## Circle Graphs

A survey was taken of students' favorite type of fiction book. There were 400 students surveyed. About how many students named mystery as their favorite type of fiction? Explain how you know.

Read and understand the problem.  
*What does the problem ask you to find?*



*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

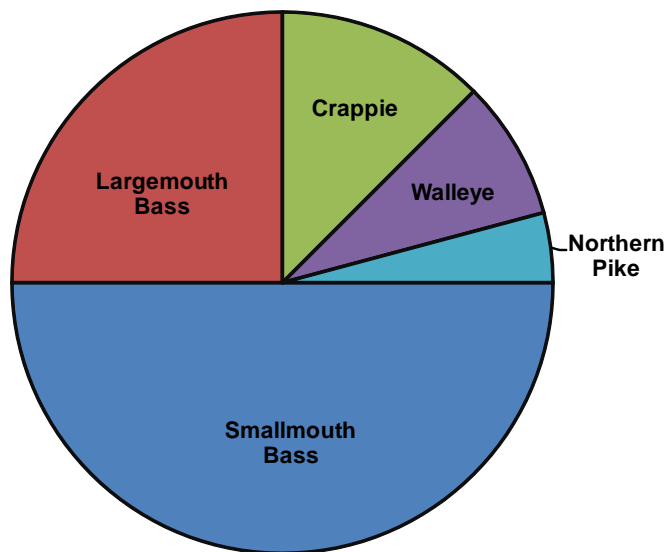
Look back.

*Does your answer match the question?*

*Does the answer make sense?*

## Circle Graphs

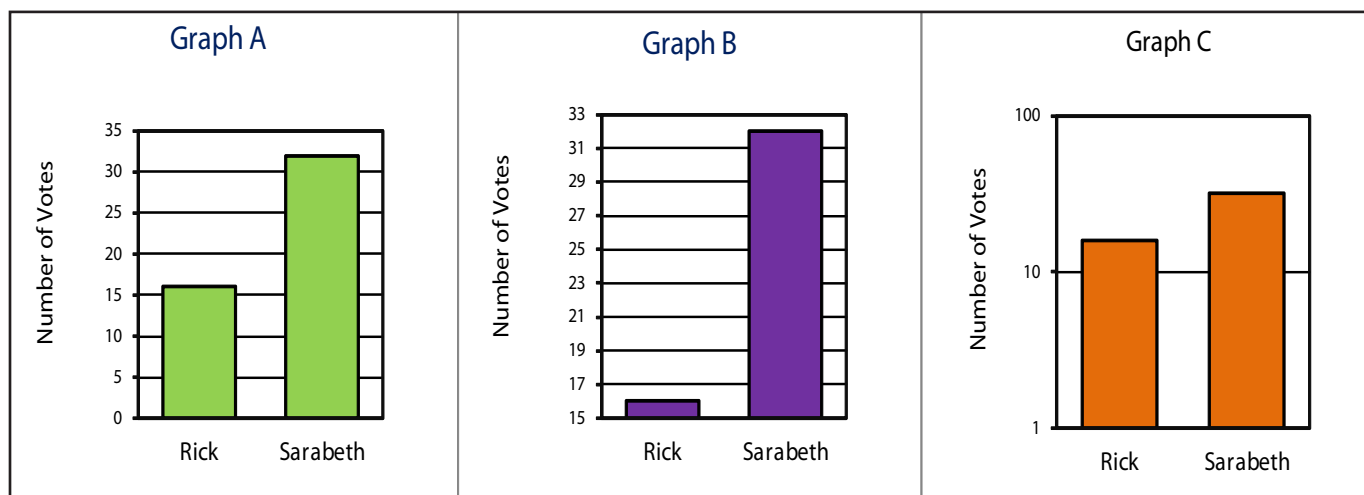
### Fish Caught in Black Lake



The number of fish caught in Black Lake in the month of June is shown in the circle graph above. There were 600 smallmouth bass caught. About how many fish were caught in all?

There were 100 walleye and 50 northern pike caught in June. About how many crappie were caught?

## Misleading Graphs



**Which graph shows the most accurate comparison of the number of votes between the two candidates?**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

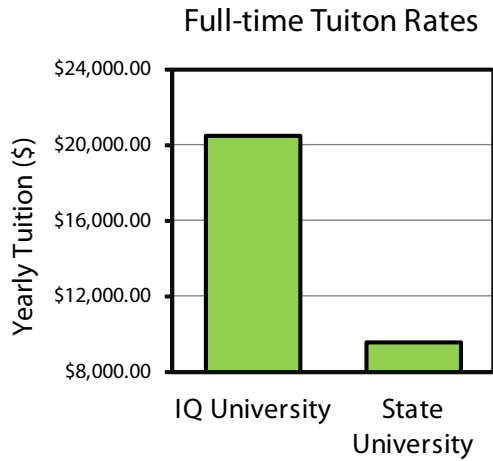
*Carry out your plan.*

Look back.

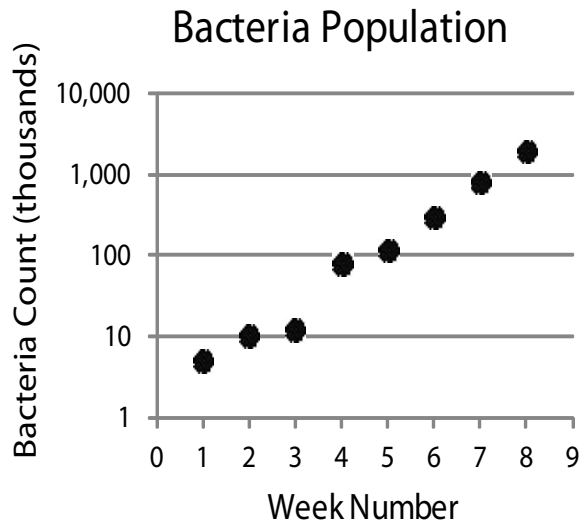
*Does your answer match the question?*

# Misleading Graphs

Does the graph show an accurate comparison between the costs of the two college tuitions? Explain.

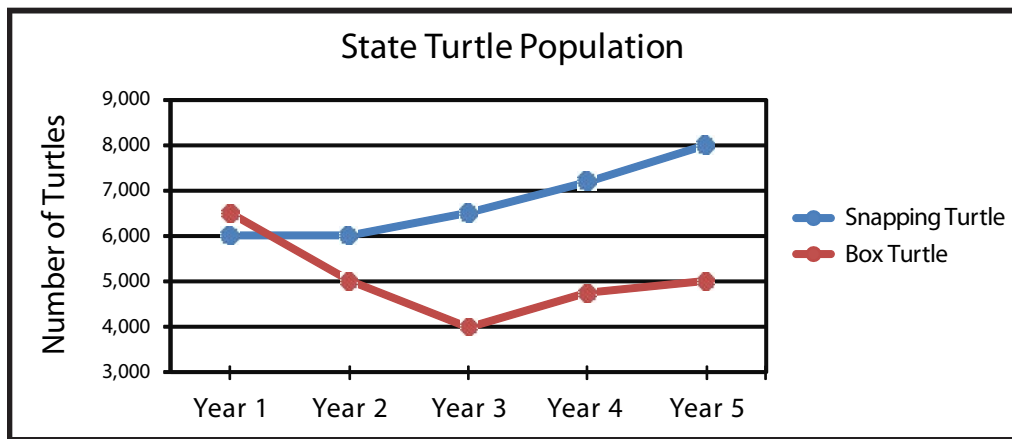


How can this graph be changed to give a more accurate picture of the change in bacteria population?





## Double Graphs



The line graph above shows the turtle population at the end of each year over a 5-year period. By the end of the five years, how many more snapping turtles were there than box turtles?

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

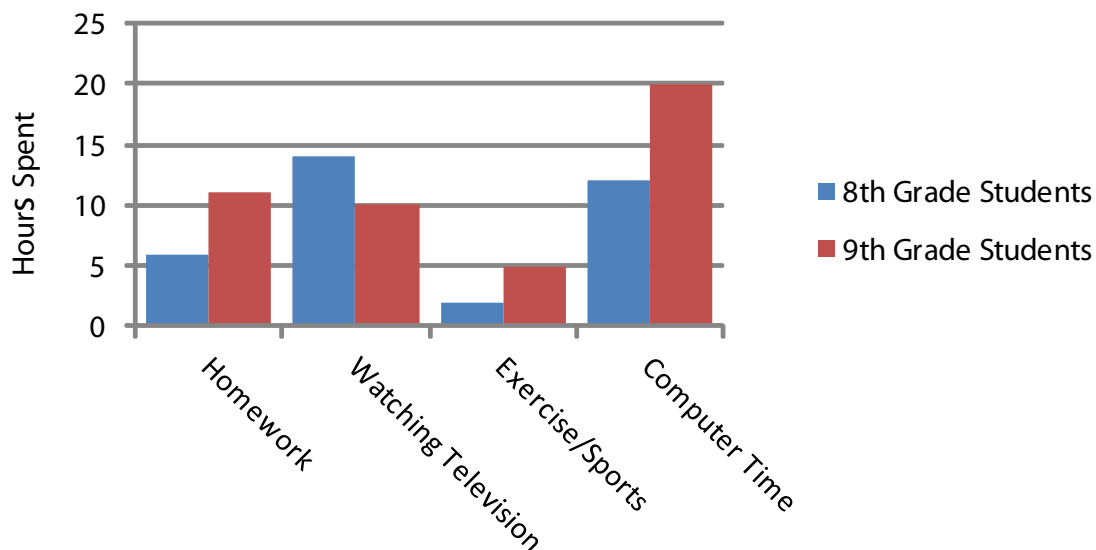
*Carry out your plan.*

Look back.

*Does the answer make sense?*

## Double Graphs

### Average Time Per Week

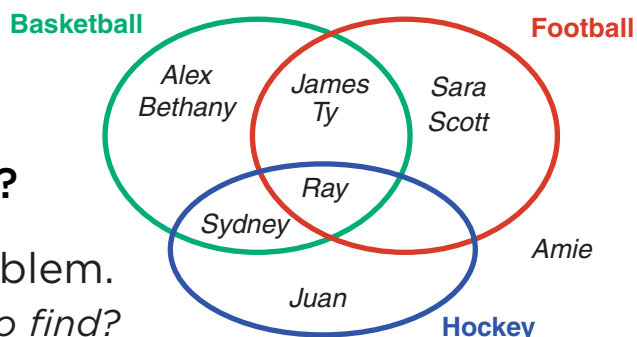


On average, how many more hours do 9th grade students spend on the computer in a week than on exercise or sports?

On average, how many more hours do 9th grade students spend on homework than 8th grade students?

## Venn Diagrams

Katrina made a diagram to show what type of sports her friends like to watch. What sports does Ray like to watch?



Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

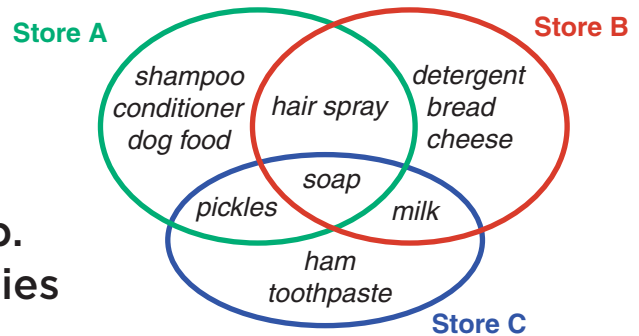
*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

## Venn Diagrams

Jordan has a list of items to purchase and wants to get as many as possible in one trip. She used a Venn diagram to help her decide where to shop. Which of the three stores carries both pickles and toothpaste?



Draw a Venn diagram of the whole numbers less than 10 where set A is numbers that are less than 5 and set B is even numbers.

## Organize

Anne asked her friends how many minutes they usually spend getting ready for school each morning. She made a tally chart to keep track of the data. Make a frequency table to organize the data.

Read and understand the problem.

*What does the problem ask you to do?*

Number of minutes getting ready for school			
0 to 15		61 to 75	/     /     /
16 to 30		76 to 90	/
31 to 45	/     /	91 to 105	
46 to 60	/     /	Over 105	

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does your total tally count match the total number in the frequency table?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Organize

Heather went to six different restaurants and got calorie content information on 50 different sandwiches. She recorded her results in the tally chart below. Make a frequency table to organize the results.

Calories per sandwich			
Less than 200		650 to 799	
200 to 349		800 to 900	
350 to 499		901 to 950	
500 to 649		Over 950	

Ask 20 people their favorite color. Make a tally chart and a frequency table to show the results.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Choose a Graph

**A marketing firm has monitored the average cost of a home computer over the last 25 years. What type of graph is the best way to show how the cost has changed over the years? Explain.**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

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Name \_\_\_\_\_

Date \_\_\_\_\_

## Choose a Graph

There are 212 employees working in an office complex. The number of those employees that go out to lunch instead of bringing a lunch is recorded each day for a week. What type of graph is a good way to show the results?

Geoffrey surveyed the students in his senior class on their favorite form of exercise. He wants to use a graph to show how each choice compares to the whole class. What is the best type of graph for him to use?



Name \_\_\_\_\_

Date \_\_\_\_\_

## Choose a Scale

A city survey of sports participants found that in the past year 52,200 people roller bladed, 23,000 people golfed, 61,500 people biked, 70,700 swam, and 98,800 ran. If you were going to make a bar graph to show this data, what values might you use for your vertical scale and interval?

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Choose a Scale

When Mr. Boylan gave his mid-term science test, he asked each student to include the amount of time they spent studying for the test. Of the responses, 12 students spent less than one hour, 18 spent between one and two hours, and 6 spent over two hours. If you were going to make a histogram to show this data, what values might you use for your vertical scale and interval?

A hiking club watched the average age of its members over 6 years. The results were Year 1: 22, Year 2: 24, Year 3: 25, Year 4: 27, Year 5: 29, Year 6: 23, Year 6: 26. If you were going to make a line graph to show this data, what values might you use for your vertical scale and interval?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Construct a Graph

**Make a bar graph to display the information given in the table. Use a vertical scale from 0% to 50% with an interval of 5%.**

Jack's Free-throws Made	
Week	Percent Made
1	25
2	39
3	35
4	46
5	40

Read and understand the problem.  
*What does the problem ask you to do?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

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Name \_\_\_\_\_

Date \_\_\_\_\_

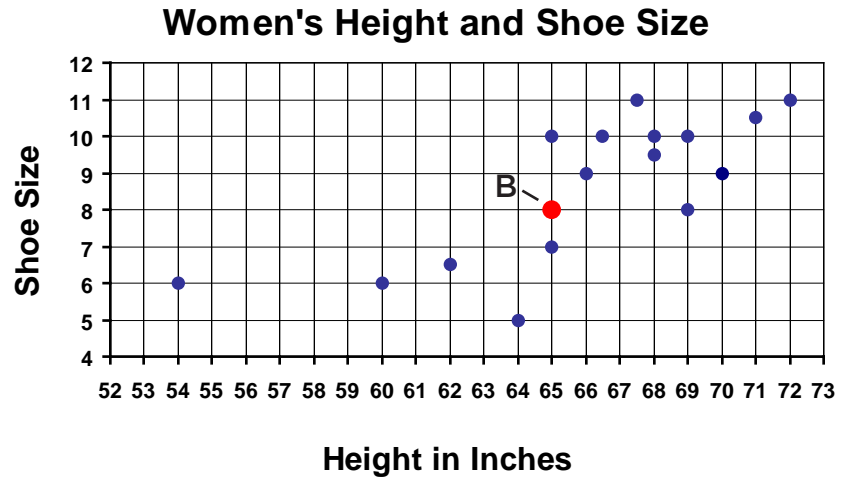
## Construct a Graph

One hundred cat owners were asked where their cat usually is at night. Of those surveyed, 15 said sleeping in their owner's bed, 50 said creeping around the house, and 35 said outside. Make a circle graph to display the data.

Naomi wants to show her mom how her math grades have gone up. Her averages for the last 4 weeks are as follows: 76%, 79%, 80%, 84%. Make a line graph that makes it appear that her grades have shown a great increase.

# Scatterplots

From the scatterplot shown, what is the approximate height and shoe size of the woman represented by point B?



Read and understand

**Height in Inches**

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

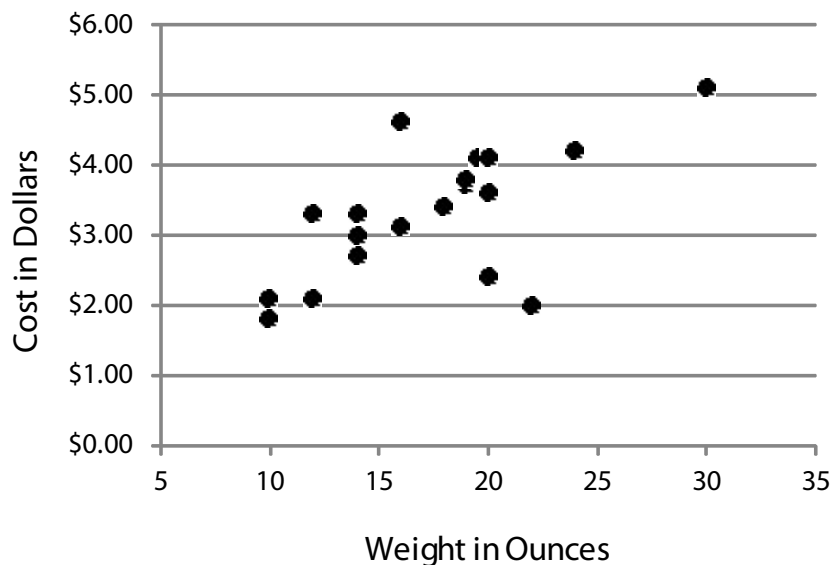
Look back.

*Does your answer match the question?*

*Did your plan work for this problem?*

# Scatterplots

## Cereal Box Size and Price



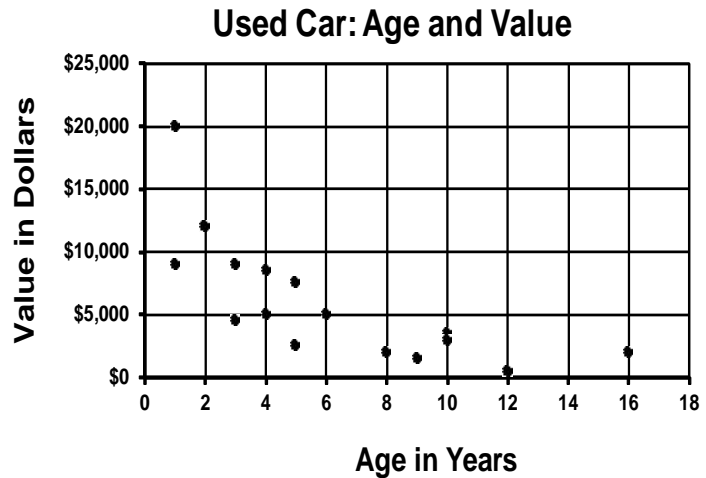
Use the scatterplot above to answer the following:

What is the approximate cost of the only box of cereal that weighs 30 ounces?

How many boxes of cereal were recorded that cost about \$2.00?

## Trends

The market value of similar models of used cars and their age in years were charted on a scatterplot. Does the data show a trend? If so, describe the pattern.



Read and understand the problem.  
*What does the problem ask you to find?*

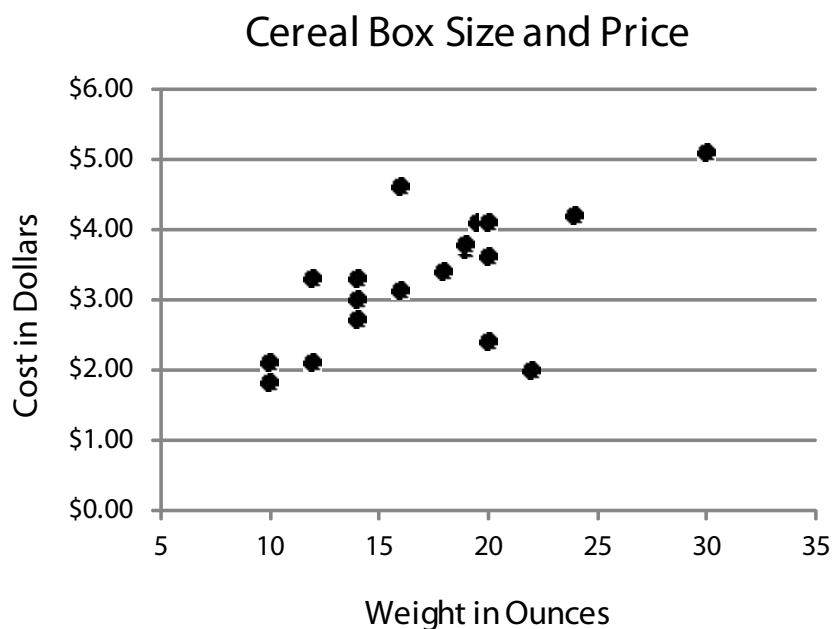
*What information do you need to solve the problem?*

Make a plan.  
*How can you solve this problem?*

Solve the problem.  
*Carry out your plan.*

Look back.  
*Does the answer match the questions?*  
*Does the answer make sense?*

## Trends



**Use the scatterplot above to answer this question:**

**Is there a trend in the data? If so, what is the trend?**

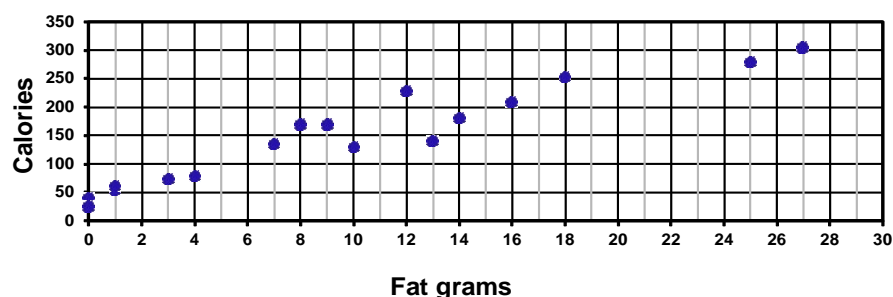
**Would you expect a positive or negative trend in the number of weeks a CD has been out for sale and the number of weekly sales? Why?**



## Predictions

The scatterplot shows data relating the amount of fat and the number of calories in a serving size of different foods. Make a prediction about the number of calories you might find in a serving of food that contains 22 grams of fat.

Fat and Calories per Serving



Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

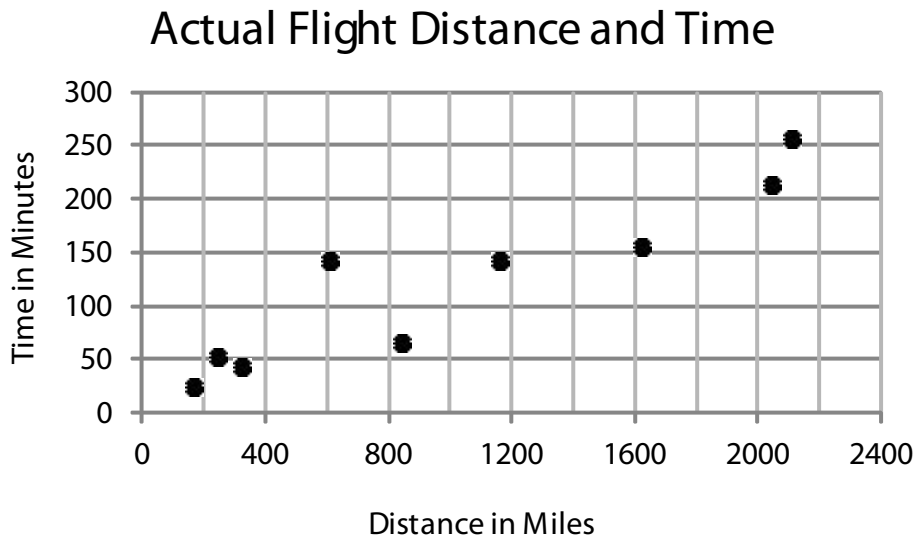
Look back.

*Does your answer match the question?*

*Does the answer make sense?*

## Predictions

Draw a trend line for the information in the scatterplot.



About how many minutes would you expect a flight of 1,784 miles to take?

Chandra flew 682 miles on a non-stop flight. Her flight took three hours. Does this seem reasonable? Explain.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Mean

Julie practices her French horn every day. She practiced the following number of minutes each day for ten days: 36, 42, 65, 47, 92, 28, 50, 68, 72, 80. What is the mean number of minutes Julie practices per day?

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Mean

A store had daily sales of \$779, \$826, \$788, \$818, \$799, \$1455, and \$1269 during one week. What is the mean of the daily sales?

CJ worked all day Saturday at a deli. The number of customers he served each hour was 4, 16, 13, 17, 20, 14, 2, and 10. What is the mean number of customers per hour?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Median and Mode

Relay runners on the track team recorded their running times for a quarter-mile on the first day of practice. What are the median and mode times?

Quarter-mile times (seconds)						
67	80	74	62	98	120	60
87	74	93	84	58	66	68

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Median and Mode

A survey of teachers asked how many times each had called in sick over the past year. The results were: 0, 6, 0, 2, 1, 5, 18, 0, 3, 4, 0, 0, 2, 5, 11, 10, 1, 1, 0. What are the median and mode for the results?

The number of high school students in each district in one state is listed on the right. What are the median and mode?

<b>High School Students per District</b>		
1,372	2,568	893
932	758	1,256
1,045	518	988

Name \_\_\_\_\_

Date \_\_\_\_\_

## Outliers

Keisha's class took a science test. The scores were 92, 80, 95, 86, 82, 79, 97, 81, 43, 92, 94, and 87. Find the mean, median, and mode. Which measure best describes the scores? Explain.

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Did you answer the whole question?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Outliers

Each person in Ginny's room recorded his or her height. In centimeters, the measurements were 126, 141, 138, 132, 133, 144, 131, 134, 137, 150, 140, 146, 142, 140, 152, 126, 192 and 136. Find the mean, median, and mode heights in centimeters.

Remove the highest measurement from the above problem and find the new mean, median, and mode. How does removing the outlier change the answers? Explain.



Name \_\_\_\_\_

Date \_\_\_\_\_

## Likelihood

**Nicky tosses one six-sided die, numbered with the digits 1 through 6. Using the words likely, unlikely, even chance, certain, or impossible, what is the likelihood that the result will be greater than 2?**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Likelihood

Nicky tosses one six-sided die, numbered with the digits 1 through 6. Using the words *likely*, *unlikely*, *even chance*, *certain*, or *impossible*, what is the likelihood that the result will be an even digit?

Nicky tosses two six-sided dice, each numbered with the digits 1 through 6. Using the words *likely*, *unlikely*, *even chance*, *certain*, or *impossible*, what is the likelihood that the sum of the digits will be greater than 12?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Sample Space

One of the games at a county fair is a coin toss. Coins are tossed onto a board similar to the one shown. Blank spaces award no prize. What is the sample space for the prize board shown?

Small Choice	Medium Choice	Small Choice	Medium Choice	Small Choice
Medium Choice	Poster	Large Choice	Poster	Medium Choice
Small Choice	Large Choice	T-shirt	Large Choice	Small Choice
Medium Choice	Poster	Large Choice	Poster	Medium Choice
Small Choice	Medium Choice	Small Choice	Medium Choice	Small Choice

Read and understand the problem.  
*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Did you miss any outcomes?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Sample Space

The sample space for one coin being tossed one time is heads and tails. What is the sample space for one coin that is tossed two times? Hint: If both tosses are heads, the outcome is heads, heads.

Luke tossed two six-sided dice. What is the sample space for the sum of the dice?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Probability

Chelsea's bag of jelly beans has 3 pink, 1 black, 2 green, 4 red, and 2 purple beans left. If she reaches in and randomly chooses a jelly bean, what is the probability that it is green?

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Probability

Alexander is playing a game with a number cube. It is his turn. If he rolls a 4 or more, he wins the game. What is the probability of Alexander winning the game?

Kara's parents let her have a kitten for her birthday. There were 2 males and 4 females. All of the kittens are so cute, she just closed her eyes and picked one. What is the probability that her kitten is a male?

Bengy has a drawer with only white socks. If he reaches in and grabs one sock, what is the probability that the sock is white?

Name \_\_\_\_\_

Date \_\_\_\_\_

## The Complement

**The probability that a traffic light is red is  $\frac{7}{16}$ . What is the probability that the light is not red? The probability that the same light is green is  $\frac{1}{2}$ . What is the probability that the light is yellow?**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## The Complement

The probability of having 5 children that are all male is  $\frac{1}{32}$ . What is the probability of having 5 children that are NOT all male?

You have a standard deck of 52 cards. What is the probability of you randomly drawing a card that is not a diamond?

You have a standard deck of 52 cards. What are the odds of you randomly drawing a heart?



Name \_\_\_\_\_

Date \_\_\_\_\_

## Tree Diagrams

The pretzel vendor in the park offers regular, whole wheat, and rye pretzels. You can get them with salt, with cinnamon and sugar, or plain. Use a tree diagram to find the number of pretzel combinations.

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

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Name \_\_\_\_\_

Date \_\_\_\_\_

## Tree Diagrams

The pretzel vendor in the park offers regular, whole wheat, and rye pretzels. You can get them with salt, with cinnamon and sugar, or plain. The vendor carries pizza sauce, nacho cheese, and vanilla frosting as toppings. Use a tree diagram to find the number of pretzel and topping combinations.

Tomas is flying from Boston to Denver. He can fly two airlines, Skyway or KingAir. Each airline uses the same three connecting cities, Atlanta, Chicago, or Columbus. Use a tree diagram to find the number of combinations of airline and connecting city.

Name \_\_\_\_\_

Date \_\_\_\_\_

## The Counting Principle

**A state speech contest allows represented clubs to enter one adult and one teen contestant. One club has 12 adults and 3 teens who would like to compete. How many possible combinations of an adult and teen are possible?**

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

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Name \_\_\_\_\_

Date \_\_\_\_\_

## The Counting Principle

Marc has a choice of 6 flights from Newark to St. Louis and a choice of 4 return flights. How many different pairs of flights can he take?

A restaurant is having a combination special. You choose an appetizer, an entree, and a dessert from the special menu for one discounted price. There are three appetizers, six entrees and two desserts on the special menu. How many possible combinations are there for the special?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Compound Events

The probability of a coin landing heads up on a toss is  $\frac{1}{2}$ .  
What is the probability of a coin landing heads up four times in four tosses?

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Compound Events

The probability that a child is a girl is  $\frac{1}{2}$ . The probability that a child is right-handed is  $\frac{4}{5}$ . What is the probability of a child being a right-handed girl?

Kristina needs to roll two 4s to win a dice game. What is the probability that she will roll two 4s when tossing two six-sided dice at the same time?

Name \_\_\_\_\_

Date \_\_\_\_\_

## Sampling and Predicting

Mychel was trying to find what kind of snack students like to eat while they study. She surveyed 50 students. Of these students, 20 said cookies, 13 said chips, 3 said nuts or granola, 10 said fruits or vegetables, and 4 said candy. From these results, if there are 180 students in Mychel's grade, how many would you expect to say fruits or vegetables?

Read and understand the problem.

*What does the problem ask you to find?*

*What information do you need to solve the problem?*

Make a plan.

*How can you solve this problem?*

Solve the problem.

*Carry out your plan.*

Look back.

*Does your answer match the question?*

*Does the answer make sense?*

*Did your plan work for this problem?*

Name \_\_\_\_\_

Date \_\_\_\_\_

## Sampling and Predicting

A telephone survey of 100 people asked which winter Olympic events people most enjoyed watching. The results were 22 skiing, 19 curling, 12 bobsled, 39 hockey, and 8 ice skating. If 250 people were surveyed, how many would you expect to say bobsled?

Akim's class had their blood types tested. Out of 25 students, 9 had type O-positive and 1 had O-negative. If the entire grade of 300 students was surveyed, how many would you expect to have an O blood type?



## Answers

### Problem-Solving Steps

- Page 2:
1. Read and understand the problem. Make a plan. Solve the problem. Look back.
  2. Possible answers: Read the problem again. Write the problem in different words.
  3. Possible answers: Write an equation. Make a diagram. Work backward.
  4. Try a different plan. Don't give up.
  5. It helps you know how to solve similar problems.

Page 3: **Read and understand the problem.**

The number of different outfits Karen can make.

The number of tops and the number of bottoms.

**Make a plan.** Possible answer: Make an organized list.

**Solve the problem.** Karen can make 9 different outfits.

**Look back.** Answers may vary.

### Read a Graph

Page 4: **Read and understand the problem.**

The number of song downloads from January to March.

The number of symbols for that time and the value of each symbol.

**Make a plan.** Possible answer: Count by the value for each symbol.

**Solve the problem.** The Beach family downloaded about 250 songs between January and March.

**Look back.** Answers may vary.

Page 5: There were about 450 cats adopted in 2008.

There were about 150 more cats adopted in 2010 than in 2008.

### Bar Graphs

Page 6: **Read and understand the problem.**

The color of the player that sold the least.

The number of sales of each color.

**Make a plan.** Possible answer: Compare the bars in the graph.

**Solve the problem.** The pink MP3 player had the least sales.

**Look back.** Answers may vary.

Page 7: About 60 students chose Algebra as their favorite subject. Literature was chosen by the least number of students as their favorite subject and Biology was chosen by the most students.

### Histograms

Page 8: **Read and understand the problem.**

The number of games in which there were 30 or more points scored.

The number of games in which a given number of points were scored.

**Make a plan.** Possible answer: Use addition.

**Solve the problem.** There were 12 games with 30 or more points scored.

**Look back.** Answers may vary.

Page 9: Six students had a test score higher than 90%. Six students must take the second exam.

### Line Graphs

Page 10: **Read and understand the problem.**

When Dina grew the least.

Dina's height on her birthdays.

**Make a plan.** Possible answer: Look at the graph.

**Solve the problem.** Dina grew the least between her 9th and 10th birthdays.

**Look back.** Answers may vary.

Page 11: Griffin showed the most improvement in his 8th week of practice.

There were 5 weeks that Griffin did not show any improvement.

## Circle Graphs

### Page 12: **Read and understand the problem.**

The approximate number of students who chose mystery.  
The number of students surveyed and what part chose mystery.

**Make a plan.** Possible answer: Use the graph and an equation.

**Solve the problem.** About 100 students named mystery as their favorite type of fiction. Mystery is about  $\frac{1}{4}$  of the total circle graph, and  $\frac{1}{4}$  of the total number surveyed, 400, is 100.

**Look back.** Answers may vary.

Page 13: About 1,200 fish were caught in all.

About 150 crappie were caught in June.

## Misleading Graphs

### Page 14: **Read and understand the problem.**

Which graph shows the most accurate comparison.  
The graphs.

**Make a plan.** Compare the way each graph represents the data.

**Solve the problem.** Graph A gives the most accurate comparison.

**Look back.** Answers will vary.

Page 15: No. The graph makes it appear that the IQ tuition is many times greater than the State tuition, instead of about double the tuition.

The graph would give a more accurate picture of the change in bacteria population if intervals on the vertical scale were equal.

## Double Graphs

### Page 16: **Read and understand the problem.**

The difference in the number of snapping turtles and box turtles at the end of five years.

The number of each type of turtle at the end of five years.

**Make a plan.** Possible answer: Write an equation.

**Solve the problem.** At the end of the five years there were 3,000 more snapping turtles than box turtles.

**Look back.** Answers may vary.

Page 17: On average, 9th grade students spend 15 hours more on the computer in a week than they do on exercise or sports.

On average, 9th grade students spend 5 hours more doing homework in a week than 8th grade students.

### Venn Diagrams

Page 18: **Read and understand the problem.**

The type of sports Ray likes to watch.

The information in the diagram and where Ray's name is on the diagram.

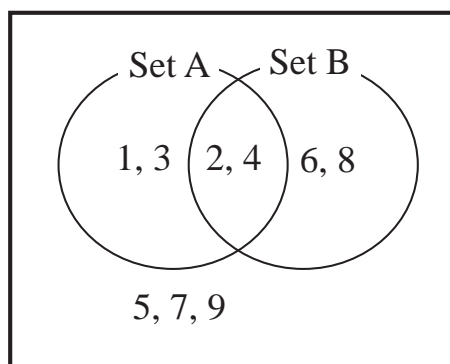
**Make a plan.** Possible answer: Use the diagram.

**Solve the problem.** Ray likes to watch basketball, football, and hockey.

**Look back.** Answers may vary.

Page 19: Store C carries both pickles and toothpaste.

Possible answer:



Organize

Page 20: **Read and understand the problem.**

Make a frequency table.

The data to put in the table.

**Make a plan.** Make a frequency table.

**Solve the problem.**

Number of minutes getting ready for school	Frequency
0 to 15	4
16 to 30	5
31 to 45	13
46 to 60	12
61 to 75	17
76 to 90	8
91 to 105	5
Over 105	2

**Look back.** Answers may vary.

Page 21:

Calories per sandwich	Frequency
Less than 200	1
200 to 349	2
349 to 499	5
500 to 649	11
650 to 799	8
800 to 900	15
901 to 950	3
Over 950	5

Tally chart and frequency table will vary.

Choose a Graph

Page 22: **Read and understand the problem.**

The best type of graph to show the information.

The type of information that is being graphed.

**Make a plan.** Possible answer: Use what you know about

graphs.

**Solve the problem.** A line graph is the best way to show how a value (the cost of a home computer) changes over time.

**Look back.** Answers may vary.

Page 23: A pictograph, bar graph, or line graph.

A circle graph.

Choose a Scale

Page 24: **Read and understand the problem.**

A vertical scale and interval for a bar graph of the data.  
The data values to be graphed.

**Make a plan.** Possible answer: Analyze the values.

**Solve the problem.** Answers will vary. Possible answer: A vertical scale of 0 to 100,000 and an interval of 10,000.

**Look back.** Answers may vary.

Page 25: Answers will vary. Possible answer: A vertical scale of 0 to 20 and an interval of 5.

Answers will vary. Possible answer: A vertical scale of 20 to 30 and an interval of 1.

Construct a Graph

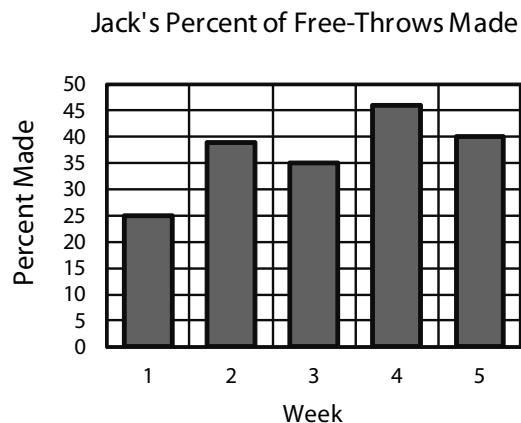
Page 26: **Read and understand the problem.**

Make a bar graph.

The data from the table.

**Make a plan.** Make a bar graph.

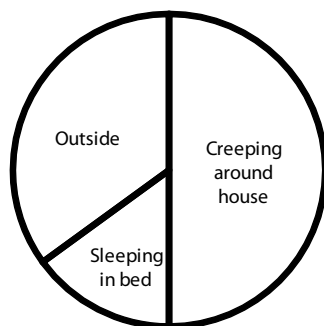
**Solve the problem.**



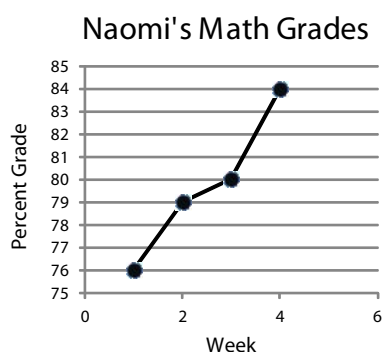
**Look back.** Answers may vary.

Page 27: Possible answer:

Where is Your Cat at Night?



Possible answer:



### Scatterplots

Page 28: **Read and understand the problem.**

The approximate height and shoe size of the woman whose data is recorded at point B.

The location of point B on the graph.

**Make a plan.** Possible answer: Find point B and read the data.

**Solve the problem.** The woman is about 65 inches tall and wears size 8 shoes.

**Look back.** Answers may vary.

Page 29: The box of cereal that weighs 30 ounces has a cost of a little over \$5.00.

There were 4 boxes of cereal recorded with a cost of around \$2.00.

## Trends

### Page 30: **Read and understand the problem.**

If there is a trend in the data and the pattern if there is one.

The scatterplot of the data.

**Make a plan.** Possible answer: Look for a pattern.

**Solve the problem.** There is a trend in the data that shows that as a car gets older, its value decreases.

**Look back.** Answers may vary.

Page 31: The data shows a trend of a larger box of cereal having a greater cost.

There would probably be a negative trend. It is likely that the longer a CD has been out for sale, the fewer sales are going to be made each week.

## Predictions

### Page 32: **Read and understand the problem.**

A prediction for the number of calories in a food with 22 grams of fat.

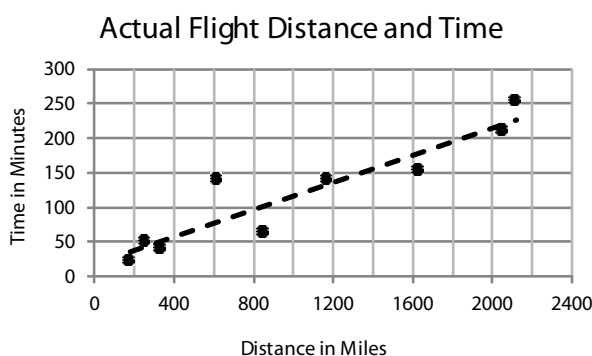
The data in the scatterplot.

**Make a plan.** Possible answer: Draw a trend line.

**Solve the problem.** There could be about 275 calories in a serving of food with 22 grams of fat.

**Look back.** Answers may vary.

### Page 33:



A flight of 1,784 miles could be expected to take about 200 minutes.

Three hours is the same as 180 minutes. This is high for the scatterplot. Of course, there may be other reasons for the time difference, such as weather, a delay in landing, or a slower plane.



## Mean

Page 34: **Read and understand the problem.**

The mean number of minutes Julie practices per day.  
The number of days and the number of practice minutes each day.

**Make a plan.** Possible answer: Break it apart.

**Solve the problem.** Julie's mean number of practice minutes per day is 58.

**Look back.** Answers may vary.

Page 35: The mean for the daily sales is \$962.

CJ served a mean of 12 customers per hour.

## Median and Mode

Page 36: **Read and understand the problem.**

The median and mode time for a quarter-mile run.  
The quarter-mile time for each runner.

**Make a plan.** Possible answer: Organize the data.

**Solve the problem.** The median time is 74 seconds.

The mode time is 74 seconds.

**Look back.** Answers may vary.

Page 37: The median number of days teachers called in sick is 2.

The mode is 0.

The median number of students is 988. There is no mode.

## Outliers

Page 38: **Read and understand the problem.**

The mean, median, and mode scores, which is the best measure, and why.

The number of scores, each score.

**Make a plan.** Possible answer: Find the three measures, then compare the measures to the set of scores.

**Solve the problem.** The mean is 84, the median is 87, and the mode is 92. The best measure is the median. The mode is too high and the mean is influenced too much by the outlier 43.

**Look back.** Answers may vary.

Page 39: The mean is 141 centimeters. There are two modes, 126,

140 centimeters. The median is 139 centimeters. The new mean is 138 centimeters. The modes are the same, 126 and 140. The new median is 138 centimeters. Removing the outlier did not change the modes. The median changed slightly, and the mean had a greater change. Removing the outlier makes the mean a better description of the set.

### Likelihood

Page 40: **Read and understand the problem.**

The likelihood of Nicky tossing a number greater than 2. The number of sides on the die, and what numbers are on the sides.

**Make a plan.** Possible answer: Compare the chances of the event happening to the chances of it not happening.

**Solve the problem.** It is likely that Nicky will toss a number greater than 2.

**Look back.** Answers may vary.

Page 41: There are even chances that the result will be an even digit.

It is impossible for the sum of the digits to be greater than 12.

### Sample Space

Page 42: **Read and understand the problem.**

The sample space of the game.

The game board.

**Make a plan.** Possible answer: Make an organized list.

**Solve the problem.** The sample space is: small choice, medium choice, poster, large choice, and t-shirt.

**Look back.** Answers may vary.

Page 43: The sample space is: heads, heads

heads, tails

tails, heads, and

tails, tails.

The sample space is: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12.

## Probability

### Page 44: **Read and understand the problem.**

The probability that a randomly chosen jelly bean will be green.

The total number of jelly beans and the number that are green.

**Make a plan.** Possible answer: Write a fraction.

**Solve the problem.** The probability of Chelsea choosing a green jelly bean is  $\frac{1}{6}$ .

**Look back.** Answers may vary.

### Page 45: The probability of Alexander winning the game is $\frac{1}{2}$ .

The probability of Kara's kitten being a male is  $\frac{1}{3}$ .

The probability of the sock being white is 1.

## The Complement

### Page 46: **Read and understand the problem.**

The probability that the traffic light is not red, and the probability that the light is yellow.

The probabilities of a red light and a green light.

**Make a plan.** Possible answer: Write an equation.

**Solve the problem.** The probability that the light is not red is  $\frac{9}{16}$ . The probability that the light is yellow is  $\frac{1}{16}$ .

**Look back.** Answers may vary.

### Page 47: The probability of having 5 children that are NOT all male is $\frac{31}{32}$ .

The probability of not drawing a diamond is  $\frac{3}{4}$ .

The odds of drawing a heart are 1 to 3.

## Tree Diagrams

### Page 48: **Read and understand the problem.**

The number of combinations of pretzel and topping.

The types of pretzels and types of toppings.

**Make a plan.** Make a tree diagram.

**Solve the problem.** There are 9 pretzel combinations.

**Look back.** Answers may vary.

Page 49: There are 27 combinations of pretzel and topping.  
Tomas has 6 possible combinations of airline and connecting city.

### The Counting Principle

Page 50: **Read and understand the problem.**

The number of combinations of adult and teen that can enter the contest.

The number of possible adults and the number of possible teens.

**Make a plan.** Possible answer: Use multiplication.

**Solve the problem.** There are 36 possible combinations of adult and teen.

**Look back.** Answers may vary.

Page 51: Marc can take 24 different combinations of flights.  
There are 36 possible combinations for the special.

### Compound Events

Page 52: **Read and understand the problem.**

The probability of four heads on a coin in four tosses.

The probability of a coin landing heads up.

**Make a plan.** Possible answer: Use a tree diagram.

**Solve the problem.** The probability a coin landing heads up four times in four tosses is  $1/16$ .

**Look back.** Answers may vary.

Page 53: The probability of a right-handed girl is  $2/5$ .  
The probability of tossing two 4s is  $1/36$ .

### Sampling and Predicting

Page 54: **Read and understand the problem.**

The number of students you would expect to say fruits or vegetables is the snack they like to eat while they study.

The number of students in the survey, and how many of them had that response.

**Make a plan.** Possible answer: Write an equation.

**Solve the problem.** You would expect 36 students to say fruits or vegetables.

**Look back.** Answers may vary.

Page 55: You would expect 30 people out of 250 to say bobsled.  
You would expect 120 of the students to have an O blood type.