

## More About Percents

**I**n *Bits and Pieces I*, you changed numbers in fraction or decimal form to percent form. In the last investigation, you built on this to find an amount given as a percent of a total. For example, you started with the price of an item and the percent discount offered on the item, and you computed how much money you would save.

Now you will face similar situations, but you will be given different pieces of information.

### 5.1 Clipping Coupons

**N**ewspapers often have coupons for discounts on many different things. One coupon for shampoo is shown.



The regular price for the shampoo is \$5.00. Alicia wants to figure out what percent discount this is. She thinks about the problem this way:

“I need to find what percent \$1.50 is of \$5.00. I can think of these amounts in pennies. The fraction I want to represent as a percent is  $\frac{150}{500}$ , which is equivalent to  $\frac{30}{100}$ . This means that the discount is 30%!”

## Problem 5.1 Finding Percent Discounts

- A. What percent discount do you get with this coupon? Try to find more than one way to solve this problem. Be prepared to explain your methods.



- B. Estimate each percent discount for the sales below. Explain.



- C. The 25% discount on a skateboard is \$24.75. What is the cost without the discount?
- D. The 15% discount on a sweater is \$6.75. What is the original cost?

**ACE** Homework starts on page 67.

## 5.2 How Much Can We Spend?

Sometimes you have to figure out whether you have enough money in your pocket to buy an item that you want. Suppose you go out to dinner with friends and put all of your money together. What can you buy?

### Problem 5.2 Solving Percent Problems

- A. Your group has \$60 altogether for pizza. The tax is 5% and you want to leave a 15% tip on the price of the food before sales tax. What is the maximum amount your group can spend and not go over \$60? Explain your reasoning. Show any diagrams you make to help figure out the answer.
- B. You and your friends go out to eat again. This time you have \$80 altogether. The tax is 7% and you want to leave an 18% tip. What is the maximum amount your group can spend and not go over \$80? Explain. Show any diagrams you make to help figure out the answer.



- C. To celebrate your election to the student council, your grandparents take you shopping. You have a 20%-off coupon. The cashier takes 20% off the \$68.79 bill. Your grandmother remembers that she has an additional coupon for 10% off. The cashier takes the 10% off what the cash register shows. Does this result in the same amount as 30% off the original bill? Explain.

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## 5.3

## Making Circle Graphs

Circle graphs, or pie charts, are special kinds of graphs used to show how a whole (100%) is divided into several categories. They are often used to survey data. For example, dog and cat owners who said their pets had bad breath were asked, “Which of these methods do you use most frequently to take care of your pet’s bad breath?” Here are the results:

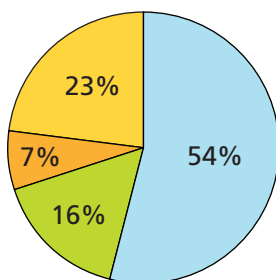
**Owner Solutions for  
Bad Breath in Pets**

	Dog Owners	Cat Owners
Toothpaste	54%	53%
Mouthwash	16%	14%
Dental floss	7%	24%
Other	23%	9%
Total	100%	100%

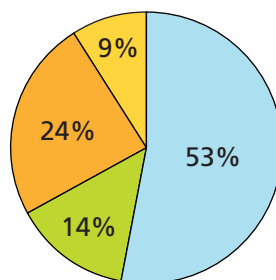
Notice that the total of each column in the table is 100%.

Now, here are the results displayed in two pie charts.

**Owner Solutions for  
Bad Breath in Dogs**



**Owner Solutions for  
Bad Breath in Cats**

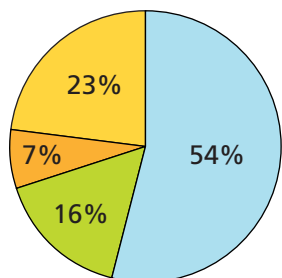


Toothpaste
  Mouthwash
  Dental floss
  Other

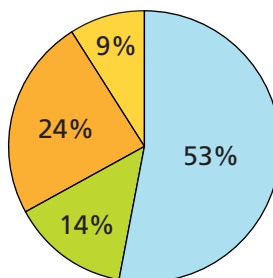
## Problem 5.3 Making Circle Graphs

Study the circle graphs below. Use what you know about angle measures, circles, and percents to figure out how they were made. Then work on the questions below.

**Owner Solutions for Bad Breath in Dogs**



**Owner Solutions for Bad Breath in Cats**



■ Toothpaste 
 ■ Mouthwash 
 ■ Dental floss 
 ■ Other

- A.** Private investigators and crime-lab technicians were asked, “Would you say your job is exciting?” Use the results in the table to make two circle graphs.

	Crime-Lab Technicians	Private Investigators
Yes	40%	75%
No	60%	25%
Total	100%	100%

- B. 1.** Cat and dog owners were asked, “Does your pet sleep in the same room with you?” Use the results in the table to make two circle graphs.

	Cat Owners	Dog Owners
Yes	73%	47%
No	27%	53%
Total	100%	100%

- 2.** How do the answers of the cat owners and dog owners compare?

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