

# Lesson 3: Shopping

## Pre-Lesson Vocabulary Practice

Match the terms on the right with the correct pictures below.

1. \_\_\_\_\_



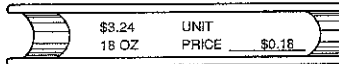
2. \_\_\_\_\_



3. \_\_\_\_\_



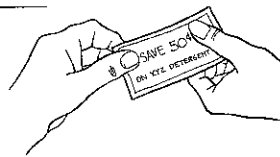
4. \_\_\_\_\_



5. \_\_\_\_\_



6. \_\_\_\_\_



- a. a calculation
- b. a calculator
- c. a coupon
- d. price sticker from a store shelf
- e. list price of an item
- f. discounted item

Study the vocabulary items below. Then find them in the lesson.

**combined** – added together

**end-of-season sale** – items with discounted prices because a particular season is over

**list price** – the original cost of an item

**maximum** – the greatest amount; the opposite of minimum

**on top of** – in addition to

**original** – the initial cost before deductions or additions

**a purchase** – something paid for

**raises** – increases

**sales tax** – money charged by a government and added to the original price of an item

**shortcut** – an easier and quicker way to do something

**subtotal** – a total amount before another amount is added or subtracted

**to save** – to not spend

**to suppose** – to assume

**to take advantage of** – to use and get the benefit of

**to the nearest dollar** – to make a rounding calculation

**to vary from state to state** – to change, depending on the state

**worth** – a dollar amount

Work with a partner. One of you reads the terms from the list above, but in a different order. The other says the meanings. Then take turns — one of you reads aloud a term from the list. The other finds the correct meaning and reads it aloud.

Answers are on page 256.



## Lesson 3

# Shopping

Today consumers shop over the telephone and on the Internet as well as at stores. But the mathematics of shopping is the same as it has always been. The amount a customer pays is the total of the **list prices** for the items that the customer purchases.

In a department store, the list price may be on a sticker attached to the item. In a grocery store, the list price may be written on a tag on the shelf below the item. The list price may appear beside the description of the item in a catalog or on a company's Web page.

Use the cost formula to find the price of an item. The cost formula is  $c = nr$  where  $c$  is the cost of an item,  $n$  is the number of items, and  $r$  is the rate or cost for a single item.

**Example 1** Irma bought 2.3 pounds of beef that cost \$2.49 per pound and 1.7 pounds of chicken that cost \$1.19 per pound. What was the total cost of her purchases?

**Solution** **Step 1.** Find the cost of the beef.

$$2.3 \times \$2.49 = \$5.727 \text{ or } \$5.73$$

**Step 2.** Find the cost of the chicken.

$$1.7 \times \$1.19 = \$2.023 \text{ or } \$2.02$$

**Step 3.** Add the two costs.

$$\$5.73 + \$2.02 = \$7.75$$

In many states a customer also has to pay a **sales tax**. Sales tax is a percent of the **subtotal** of the items a customer purchases.

**Example 2** Michelle bought a bottle of shampoo for \$1.89, a container of detergent for \$4.99, and a tube of toothpaste for \$1.29. What was the total of these items if the sales tax rate in Michelle's community is 6.5%?

**Solution.** **Step 1.** To find the subtotal, add the prices of the items Michelle bought.

$$\$1.89 + \$4.99 + \$1.29 = \$8.17$$

**Step 2.** Find 6.5% of the subtotal:  $6.5\% = 0.065$ .

$$0.065 \times \$8.17 = \$0.53105 \text{ or } \$0.53$$

**Step 3.** Add the subtotal and the sales tax.

$$\$8.17 + \$0.53 = \$8.70$$

The last two steps can be combined in a shortcut. Think of the subtotal as 100%. The total price including sales tax is  $100\% + 6.5\% = 106.5\%$ . The total cost of Michelle's purchases is

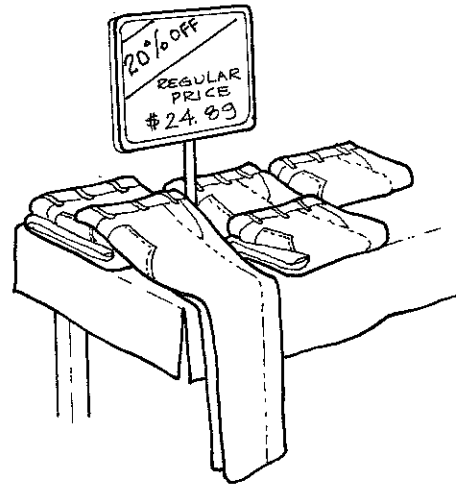
$$1.065 \times \$8.17 = \$8.70105 \text{ or } \$8.70$$

Sales tax rates vary from state to state and even from town to town. Communities sometimes add an additional tax on top of the state sales tax rate. Also, sales tax may not apply to all items. Some items such as food or clothes, if they are below a certain price, may be exempt from sales tax. The word *exempt* means "free from" or "not subject to."

A sales tax raises the total price a customer pays. However, when an item is "on sale," a customer gets a **discount**. A discount means that the list price is reduced. The discount is often a **percent off** the original price. The sale price is the list price minus the discount.



### Example 3



What is the sale price of a pair of jeans listed at \$24.89 but on sale for 20% off the list price?

**Solution** **Step 1.** Find 20% of the list price:  $20\% = 0.2$ .

$$0.2 \times \$24.89 = \$4.978 \text{ or } \$4.98$$

**Step 2.** Subtract the discount from the list price.

$$\$24.89 - \$4.98 = \$19.91$$

Notice the difference between the two simple words *off* and *of*. The term "20% off" the list price means to subtract "20% of" the list price from the list price. The word *off* suggests subtraction, and the word *of* suggests multiplication.

There is a shortcut to finding a percent off a list price. Again, think of the original price as 100%. 20% off means  $100\% - 20\% = 80\%$ . The sale price is 80% of the original price. For the jeans in Example 3, the sale price is:

$$80\% \text{ of } \$24.89 = 0.8 \times \$24.89 = \$19.912 \text{ or } \$19.91$$

Another way to reduce the price of items is with a **coupon**. When a customer presents the coupon to a cashier, the price of an item is reduced or **discounted**.

**To solve the problems in the next exercise, review:**

- multiplying decimals, page 231
- finding a percent of a number, page 236
- finding what percent one number is of another, page 238

# Exercise 3

## Part A

Use a calculator to solve any of the problems in this exercise.

Meat		Dairy	
Ground Beef	\$1.99/lb	Jarlsberg Cheese	\$7.19/lb
Rib Steaks	\$5.99/lb	Milk	\$1.49/half gallon
Pork Chops	\$2.49/lb	Sour Cream	\$1.29/16-oz carton
Turkey Breast	\$1.49/lb	Yogurt	\$3.19/32-oz container
Fruits and Vegetables		Household Items	
Cucumbers	2 for \$1	Dishwashing Soap	\$1.69/32-oz bottle
Green Beans	\$0.99/lb	Laundry Detergent	\$4.99/80-oz liquid
Melons	\$0.89/lb	Shampoo	\$1.79/8-oz bottle
Peaches	\$1.09/lb	Toothpaste	\$1.08/12-oz tube

Use the price list above to answer problems 1 to 5. Notice the slash (/) with many of the prices. The slash represents the word *per*. For example, ground beef costs \$1.99 per pound or \$1.99/lb.

- 1 Rick bought 1.8 pounds of ground beef and 1.3 pounds of green beans. Assuming there is no sales tax on these items, what was the cost of Rick's purchases?
- 2 Marlene bought 2.4 pounds of melons, a 32-ounce bottle of dishwashing soap, and a 32-ounce container of yogurt. If none of the items had sales tax, what was the total of her purchases?
- 3 Mr. Ryan bought 3.65 pounds of peaches and an 80-ounce container of liquid laundry detergent. If there is a 5% sales tax on non food items, what was the total of these purchases?
- 4 Nate bought a piece of Jarlsberg cheese that weighed 0.45 pound and 2.1 pounds of turkey breast. If there was no sales tax on these items, what was the total of his purchases?
- 5 Deborah bought two half-gallon containers of milk, four cucumbers, and an 8-ounce bottle of shampoo. She presented a coupon for \$0.50 off the price of the shampoo to the cashier. If there is a 6% sales tax on all of these items, what is the total of her purchases including tax?