

# Vehicle Transportation

## Before YOU READ

### What You'll Learn

- Section 9-1** Compute the sticker price of a new vehicle.
- Section 9-2** Calculate the dealer's cost of a new vehicle.
- Section 9-3** Figure out the average retail price of a used vehicle.
- Section 9-4** Use tables to compute the annual premium for vehicle insurance.
- Section 9-5** Compute the total cost per mile of operating and maintaining a vehicle.
- Section 9-6** Calculate the total cost of leasing a vehicle.
- Section 9-7** Figure out the cost per mile of renting a vehicle.

### When Will You Ever Use This?

Once you decide to get a vehicle, you'll want to know how to determine the costs of new and used vehicles, insurance, and maintenance.

### Key Terms to Know

- sticker price
- base price
- options
- destination charge
- dealer's cost
- used-vehicle guides
- liability insurance
- comprehensive insurance
- collision insurance
- deductible clause
- variable costs
- fixed costs
- depreciation
- lease
- rent

### Mathematics Online

To learn more about buying and insuring a vehicle, visit [busmath.glencoe.com](http://busmath.glencoe.com).



## Living *in the* Real World

### A Hard One to Pick

Melita Gomez owns an organic farm in western Illinois. The Good Earth produces tomatoes, squash, green beans, and other vegetables, which Gomez sells to trendy restaurants in Chicago. Each year she also puts a half-acre of land into flowers, which she sells every Thursday at the local Farmer's Market.

Since Gomez's farm is a one-woman operation, she has put a lot of miles on her '73 Ford pickup. While business is good, her truck isn't. It's time for a new one. In this chapter you'll read more about Gomez's truck shopping venture.

#### Read on. Go to . . .

*You've Got Options* . . . . . p. 314

*It Pays to Do Your Homework* . . . . . p. 317

#### *Do Yourself a Favor:*

*Be Smart about It* . . . . . p. 320

*Cover Your Bumper (and More)* . . . . . p. 324

#### *Don't Forget about the*

*Other Fees Involved* . . . . . p. 327

#### *Do You Want It to Be*

*"Yours" or Not?* . . . . . p. 330

*Take It for a Test Drive* . . . . . p. 333

*Analyze the Story* . . . . . p. 337

SECTION 9-1

# Purchasing a New Vehicle

**Section Objective**

Compute the sticker price of a new vehicle.

Vehicle manufacturers are required by law to place a **sticker price** on a new vehicle's window. What's included in the sticker price?

- **Base price.** This is the price of the engine, chassis (that is, the vehicle's frame), and any other piece of standard equipment for a particular model.
- **Options.** These are extras for convenience, safety, or appearance, such as a sunroof, air-conditioning, and tinted glass.
- **Destination charge.** This is the cost of shipping the vehicle from the factory to the dealer.

Therefore, the sticker price is the total of the base price, options, and destination charge.

$$\text{Sticker Price} = \text{Base Price} + \text{Options} + \text{Destination Charge}$$

## Living in the Real World

### A Hard One to Pick

**You've Got Options** When Gomez was in high school, she bought a used truck from a friend. It's the same truck she's using now. Since Gomez has never owned another vehicle, she's never paid much attention to the sticker prices for new cars or trucks. Today she is shopping for her new vehicle at Tucker Motors. As she walks around the dealership, she reads the sticker information taped to each car's back window. She notices two different prices on the sticker—base and optional.

**Draw Conclusions** What do you think is included in the base price?

*Continued on page 317*

### Example 1

Scott Huber is shopping for a sports car. A portion of the sticker for a convertible is shown below. What is the sticker price for this vehicle?

Figure 9.1

Convertible Vehicle	
Base Price	\$23,140
Optional Equipment Description	
Anti-Lock Brakes (ABS)	730
Automatic Transmission (ATO)	815
Destination Charge	499

Need Help? Go to...

- **Workshop 4:**  
Adding Decimals,  
page 10
- **Skill 5:** Adding  
Decimals, page 732

**STEP 1: Find the options price.**

$$\$730 + \$815 = \$1,545$$

**STEP 2: Find the sticker price.**

$$\begin{array}{r} \text{Base Price} + \text{Options} + \text{Destination} \\ \text{Charge} \\ \$23,140 + \$1,545 + \$499 = \$25,184 \text{ sticker price} \end{array}$$



$$\begin{array}{l} 730 + 815 = 1545 \text{ M+} \\ 23140 + 1545 = 24685 \\ 24685 + 499 = 25184 \end{array}$$

**CONCEPT CHECK**

**SELF-CHECK**

Complete the problems, then check your answers at the end of this chapter. Find the sticker price.

	Model	Base Price	Options	Destination Charge
1.	Four-door vehicle	\$11,080	\$340; \$800; \$925	\$499
2.	Two-door truck	13,655	1,220; 650	749

**Example 2**

Carlos and Marta Alvarez are shopping for a new family vehicle. They are pricing a minivan with all-wheel drive. The base price is listed at \$25,535. The options are the touch-screen DVD navigation system at \$1,225, a heavy duty engine cooling system at \$154, trailer tow package at \$568, and a keyless entry system at \$132. The destination charge is \$349. What is the sticker price?

**STEP: Find the sticker price.**

$$\begin{array}{r} \text{Base Price} + \text{Options} + \text{Destination} \\ \text{Charge} \\ \$25,535 + \$1,225 + \$154 + \$568 + \$132 + \$349 \\ = \$27,963 \text{ sticker price} \end{array}$$

**CONCEPT CHECK**

**SELF-CHECK**

Complete the problems, then check your answers at the end of this chapter. Find the sticker price.

- |  |   |
|--|---|
| <p>3. Cargo van<br/>Base price: \$22,245<br/>Options:<br/>4.6L EFI VB \$1,186<br/>Speed control: \$204<br/>Trailer towing package: \$336<br/>Destination charge: \$715</p> | <p>4. Sports coupe<br/>Base price: \$16,725<br/>Options:<br/>4-speed elect. trans: \$860<br/>Leather trim: \$710<br/>AM/FM w/CD player: \$220<br/>Destination charge: \$465</p> |
|--|---|



Find the sticker price.

	Base Price	Options	Destination Charge	Sticker Price
5.	\$ 9,000	\$1,600	\$400	
6.	9,900	2,400	350	
7.	21,540	1,260	345	
8.	32,654	2,865	338	
9.	49,842	3,861	425	

10. Sedan.  
Base price is \$13,868.  
Options:  
Anti-lock brakes for \$550.  
Automatic transmission for \$815.  
Air conditioning for \$575.  
Tinted glass for \$195.  
Destination charge is \$345.  
What is the sticker price?
11. Sports car.  
Base price is \$17,495.  
Options:  
Anti-lock brakes for \$500.  
Automatic transmission for \$995.  
Destination charge is \$400.  
What is the sticker price?
12. Dalton Slade is interested in a sports utility vehicle that has a base price of \$31,145. Factory-installed options total \$1,245. The destination charge from its assembly plant in River Rouge, Michigan, is \$352. What is the sticker price for this car?
13. Andy Dunn sees a small pickup that he is interested in buying. There is a 5 percent state sales tax on the purchase of the truck. If Dunn pays the sticker price of \$16,069, how much sales tax must he pay?

### MAINTAINING YOUR SKILLS

Need Help? Go to...

► Skill 5: Adding  
Decimals, page 732

Add.

14.  $8,850 + 995 + 660 + 242$
15.  $6,770 + 1,217 + 648 + 344 + 85$
16.  $19,453 + 2,540 + 199 + 60$
17.  $9,851 + 2,889 + 401 + 75 + 90$
18.  $15,237 + 78.50 + 421.60 + 92$
19.  $7,575.20 + 1,243.26 + 791.24$

## SECTION 9-2 Dealer's Cost

### Section Objective

Calculate the dealer's cost of a new vehicle.

Vehicle dealers pay less than the sticker price for both the basic vehicle and the options. Consumer magazines often report the **dealer's cost** as a percent of the sticker price. You may save money when purchasing a new vehicle by making an offer that is higher than the estimated dealer's cost but lower than the sticker price. Keep this in mind as you work through this section:

Important Questions	What Formulas Do I Use?
How do I find the dealer's cost?	$\frac{\begin{array}{l} \text{Percent of Base Price} \\ \text{Percent of Options Price} \\ + \text{Destination Charge} \end{array}}{\text{Dealer's Cost}}$
How do I find the percent of the base price?	$\frac{\begin{array}{l} \text{Base Price} \\ \times \text{Percent of Dealer's Cost on Base Price} \end{array}}{\text{Percent of the Base Price}}$
How do I find the percent of the options price?	$\frac{\begin{array}{l} \text{Total Price of Options} \\ \times \text{Percent of Dealer's Cost on Options} \end{array}}{\text{Percent of the Options Price}}$

## Living in the Real World

### A Hard One to Pick

**It Pays to Do Your Homework** As a sharp businesswoman, Gomez knows that well-informed customers usually strike the best deals. Even before coming to Tucker's, she researched the dealer's cost for several truck models. She found these figures in consumer magazines and on Web sites. These sources list dealer's costs as a percent of the sticker price.

**Draw Conclusions** Once Gomez has the dealer's costs, what can she figure out?

*Continued on page 320*

### Example 1

Chin and Lisa Weng want to purchase a new car. The car has a base price of \$12,905, options totaling \$2,010, and a destination charge of \$360. They read in a consumer magazine that the dealer's cost for the car is about 95 percent of the base price and 89 percent of the options price. What should they estimate as the dealer's cost?

*Continued on next page*

**Workshop 14:**Finding a  
Percentage,  
page 30**Skill 30:**Finding the  
Percentage,  
page 757**STEP 1: Find the percent of base price.**

$$\$12,905.00 \times 95\% = \$12,259.75$$

**STEP 2: Find the percent of options price.**

$$\$2,010.00 \times 89\% = \$1,788.90$$

**STEP 3: Find the dealer's cost.**

Percent of Base Price	+	Percent of Options Price	+	Destination Charge
\$12,259.75	+	\$1,788.90	+	\$360.00
<b>= \$14,408.65 dealer's cost</b>				



$$12905 \times 95 \% 12259.75 \text{ M+ } 2010 \times 89 \% 1788.9$$

$$\text{M+ RM } 14048.65 \text{ + } 360 \text{ = } 14408.65$$

**CONCEPT CHECK****SELF-CHECK**

Complete the problems, then check your answers at the end of this chapter.

- The dealer's cost on a sport utility vehicle (SUV) is 88 percent of the base price of \$53,105, 90 percent of the options price of \$1,785, plus a destination charge of \$340. Find the dealer's cost for the SUV.

**Example 2**

The truck sticker shows a base price of \$41,036.00, with options totaling \$2,425.00 and a destination charge of \$450. *Consumer Reports* shows the dealer cost as 87.7 percent of the base price and 90.2 percent of the options. What is the dealer's cost?

**STEP 1: Find the percent of base price.**

$$\$41,036.00 \times 87.7\% = \$35,988.57$$

**STEP 2: Find the percent of options price.**

$$\$2,425.00 \times 90.2\% = \$2,187.35$$

**STEP 3: Find the dealer's cost.**

Percent of Base Price	+	Percent of Options Price	+	Destination Charge
\$35,988.57	+	\$2,187.35	+	\$450.00
<b>= \$38,625.92 dealer's cost</b>				

**CONCEPT CHECK****SELF-CHECK**

Complete the problem, then check your answer at the end of this chapter.

- The truck shows a base price of \$23,855, with options totaling \$2,256 and a destination charge of \$610. The dealer's cost is 90.5 percent of the base price and 87 percent of the options. What is the dealer's cost?

## SECTION 9-2 PRACTICE

- | $\left( \begin{array}{c} \text{Base} \\ \text{Price} \end{array} \times \begin{array}{c} \text{Dealer's} \\ \text{Percent} \end{array} \right) + \left( \begin{array}{c} \text{Option} \\ \text{Price} \end{array} \times \begin{array}{c} \text{Dealer's} \\ \text{Percent} \end{array} \right) + \begin{array}{c} \text{Destination} \\ \text{Charge} \end{array} = \begin{array}{c} \text{Dealer's} \\ \text{Cost} \end{array}$ |  |
|--|--|
| 3. $(\$8,000 \times 80\%) + (\$2,200 \times 75\%) + \$360 =$   |  |
| 4. $(\$17,000 \times 85\%) + (\$3,400 \times 80\%) + \$342 =$  |  |
| 5. $(\$14,300 \times 82\%) + (\$1,200 \times 78\%) + \$465 =$  |  |
| 6. Station wagon.<br>Base price is \$37,125.<br>Options total is \$1,075.<br>Destination charge is \$870.<br>Dealer pays 93 percent of the base price and 96 percent of the options price.<br>What is the dealer's cost?   | 7. Sedan.<br>Base price is \$29,375.<br>Options total is \$1,200.<br>Destination charge is \$350.<br>Dealer pays 91.7 percent of the base price and 83.3 percent of the options price.<br>What is the dealer's cost? |
| 8. Paul Dempsey is looking at a new sedan that has a base price of \$22,680, options totaling \$1,495, and a destination charge of \$380. The dealer's cost is about 92.5 percent of the base price and 88.3 percent of the options price. What is the sticker price of the car? What should Dempsey estimate as the dealer's cost?  |  |
| 9. Poloma Sokanon is considering the purchase of a large sports utility vehicle. She sees one with a base price of \$35,988 and options totaling \$1,275. The destination charge is \$435. She estimates that the dealer's cost is 88 percent of the base price and 80 percent of the options price. If Sokanon offers the dealer \$250 above the estimated dealer's cost, what is her offer?                                      |  |
| 10. Julia Brown offered an automobile dealer \$150 over the estimated dealer's cost on a car that has a base price of \$24,495 and options totaling \$600. The dealer's cost is about 89.7 percent of the base price and 81 percent of the price of the options. The destination charge is \$720. What was her offer?  |  |
| 11. Evander Harris is ordering a luxury coupe convertible built to his specifications. The base price is \$81,975 and options total \$2,180. There is a destination charge of \$890. The dealer's cost is about 90 percent of the base price and 88 percent of the options price. The dealer will sell him the car for \$200 more than the estimated dealer's cost plus a 6 percent sales tax. What is the total cost of the car?  |  |

## MAINTAINING YOUR SKILLS

**Find the percentage.**

- |                  |                  |
|------------------|------------------|
| 12. 8% of 700    | 13. 15% of 980   |
| 14. 22% of 756   | 15. 24% of 1,520 |
| 16. 45% of 9,800 | 17. 78% of 3,440 |

Need Help? Go to...

▶ Skill 30: Finding the Percentage, page 757



## SECTION 9-3

# Purchasing a Used Vehicle

### Section Objective

Figure out the average retail price of a used vehicle.

Vehicle dealers usually advertise used vehicles for prices that are higher than what they expect you to pay. **Used-vehicle guides** published monthly by the National Automobile Dealers Association (NADA) or Vehicle Market Research (VMR) give the average prices for vehicles that were purchased from dealers during the previous month. The information can help you make decisions about how much to pay for a used vehicle. Remember to ask yourself this question:

Important Question	What Formula Do I Use?
How do I find the average retail price of a used car?	$\begin{aligned} & \text{Average Retail Value} \\ & + \text{Additional Options} \\ & - \text{Options Deductions} \\ & - \text{Mileage Deduction} \\ \hline & \text{Average Retail Price} \end{aligned}$

## Living in the Real World

### A Hard One to Pick

**Do Yourself a Favor: Be Smart about It** Like any good consumer, Gomez did a lot of research before going to the car dealership. For information about used trucks, she read used-vehicle guides published by the National Automobile Dealers Association (NADA) and Vehicle Market Research (VMR).

**Draw Conclusions** Why is it smart to do research on a car before buying the first one you see?

*Continued on page 324*

### Example 1

Jackie Morris would like to purchase a used Palamino V8 four-door car, which is advertised for \$15,450. It has no air conditioning. It has power seats, premium sound system, leather seats, and a power sunroof. It has been driven 51,760 miles. The used-vehicle guide indicates that \$575 should be subtracted if the mileage is from 45,001 to 52,500 miles. What average retail price should Morris keep in mind when she makes an offer for the vehicle?

Figure 9.2

Palamino Four-Year-Old Vehicles	Average Retail Value	Average Wholesale Value
V6 Four-Door	\$13,050	\$11,090
V8 Four-Door	14,675	11,740
V8 Sport	15,000	12,000
Deduct w/o Air-Conditioning	800	675
Add Power Seats	125	100
Add Premium Sound System	200	175
Add Leather Seats	340	300
Add Sunroof—Manual	225	200
Add Sunroof—Power	450	375
Add Aluminum Wheels	125	100

Need Help? Go to...

- **Workshop 4:**  
Adding Decimals,  
page 10
- **Workshop 5:**  
Subtracting  
Decimals, page 12
- **Skill 5:** Adding  
Decimals, page 732
- **Skill 6:** Subtracting  
Decimals, page 733
- **Application C:**  
Tables and Charts,  
page 762

**STEP:** Find the average retail price.

Average Retail Value	+	Additional Options	-	Options Deductions	-	Mileage Deductions
\$14,675	+	(\$125 + 200 + 340 + 450)	-	\$800	-	\$575
\$14,675	+	\$1,115	-	\$800	-	\$575
<b>= \$14,415 average retail value</b>						



125 **+** 200 **+** 340 **+** 450 **M+** 1115  
 14675 **+** **RM** 1115 **-** 800 **-** 575 **=** 14415

### CONCEPT CHECK

Complete the problem, then check your answer at the end of this chapter.

1. Using **Figure 9.2**, find the average retail price for a four-year old V6 four-door vehicle that has air conditioning, power seats, leather seats, manual sunroof, and aluminium wheels. It has been driven only 36,500 miles. The used-vehicle guide indicates that \$525 should be added if the mileage is from 30,001 to 37,500 miles. What is the average retail price for this vehicle?

SELF-CHECK ✓

### Example 2

Using **Figure 9.2**, find the average wholesale price for a four-year-old V8 Sport that has no air conditioning, but does have the premium sound system and a power sunroof. It has 63,580 miles. The used-vehicle guide indicates that \$1,400 should be deducted if the mileage is from 60,001 to 67,500 miles. What is the average wholesale price for this vehicle?

**STEP:** Find the average wholesale price.

Average Wholesale Value	+	Additional Options	-	Options Deductions	-	Mileage Deductions
\$12,000	+	(\$175 + 375)	-	\$675	-	\$1,400
= \$12,000	+	\$550	-	\$675	-	\$1,400
<b>= \$10,475 average wholesale price</b>						

## CONCEPT CHECK

**SELF-CHECK**

Complete the problem, then check your answer at the end of this chapter.

2. Use Figure 9.2 to find the average wholesale price for a used V8 Sport, with air conditioning, power seats, leather seats, power sunroof, and aluminium wheels. It has 65,500 miles so you must deduct \$1,400 for excessive mileage.

## SECTION 9-3 PRACTICE

Use Figure 9.2 on page 321 to find the average retail price. All the vehicles have from 37,501 to 45,000 miles for which there is zero adjustment.

	Model	Average Retail Value	A/C	Power Seats	Premium Sound System	Leather Seats	Power Sunroof	Aluminum Wheels	Retail Price
3.	V6 4-dr	a.	Yes	No	Yes	No	Yes	No	b.
4.	V8 Sport	a.	No	Yes	No	Yes	No	Yes	b.
5.	V8 4-dr	a.	Yes	Yes	Yes	Yes	No	Yes	b.

6. Three-year-old hatchback.  
Average retail value is \$16,750.  
Add \$175 for tilt steering wheel.  
Add \$800 for air-conditioning.  
Deduct \$550 for manual transmission.  
Deduct \$450 for excessive mileage.  
What is the average retail price?
7. One-year-old sedan.  
Average retail value is \$19,100.  
Add \$200 for CD player.  
Deduct \$800 for no air-conditioning.  
Deduct \$525 for excessive mileage.  
What is the average retail price?
8. Sue Soto owns a used four-door sedan that she wants to sell so she can purchase a new vehicle. One used-vehicle guide shows that the average retail value for it is \$3,900. She adds \$50 for having a vinyl top, \$125 for a cassette player, \$25 for power windows, and \$25 for power locks. Soto deducts \$175 for having no air-conditioning. She adds \$450 for having less than the expected mileage. What is the average retail price for her vehicle?
9. Use Figure 9.2 on page 321 for Kordell Bryant who owns a four-year-old Palamino V6 four-door. The four-door has power leather seats, premium sound system, manual sunroof, aluminum wheels, and no air conditioning. There are 26,540 miles on Bryant's vehicle, which means it falls in the 22,501 to 30,000 category and calls for a deduction of \$450. What is the average retail price for Bryant's vehicle?

## MAINTAINING YOUR SKILLS

Add.

10.  $4,225 + 1,200 + 375 + 245$                       11.  $4,060 + 225 + 3,950 + 325 + 75$

Subtract.

12.  $8,450 - 475$                       13.  $3,890 - 2,530$                       14.  $2,205 - 225$

Need Help? Go to...

**Skill 3:** Adding Whole Numbers, page 730

**Skill 4:** Subtracting Whole Numbers, page 731

# SECTION 9-4 Vehicle Insurance

## Section Objective

Use tables to compute the annual premium for vehicle insurance.

If your vehicle is involved in an accident, it can cause bodily injury and property damage. For this reason, you need to have **liability insurance**. Your insurance company might offer bodily injury limits of 25/100. What does 25/100 mean?

The insurance company will pay up to <b>\$25,000</b> to any <i>one</i> person injured.	$\longrightarrow$ 25/100 $\longleftarrow$	The insurance company pays up to <b>\$100,000</b> if <i>more than one</i> person is injured.
--	---	--

Besides liability insurance on your vehicle, you'll also need to consider:

- **Comprehensive insurance**. This protects you from losses due to fire, vandalism, theft, and so on.
- **Collision insurance**. This pays to repair your vehicle if it's in an accident.

Each kind of insurance may have a **deductible clause**. This is the amount you're required to pay for any repair bill. For example, if your insurance policy states that you have a \$50-deductible clause, then this means that you pay the first \$50 of the repair bill. If your total repair bill is, say, \$400, you have to pay only \$50 and the insurance company pays the remaining amount (or \$350 in this example).

So how much is your vehicle insurance going to cost you a year? This is determined by the annual *base premium*. This involves three factors:

- the amount of insurance you want,
- how old your vehicle is, and
- the insurance-rating group, (which depends on the size and value of your vehicle).

The *annual premium* is the amount you pay each year for insurance coverage. Your annual premium depends on the:

- annual base premium. (This depends on the amount of coverage you want.)
- driver-rating factor. (This depends on your age, marital status, the amount you drive each week, and so on.)

If several people drive your vehicle, the highest driver-rating factor among those who drive your vehicle is used to determine the annual premium. Insurance companies use tables to determine your base premium. Here's how to remember all of this:

Important Questions	What Formulas Do I Use?
How do I find the <b>annual base premium</b> ?	$\frac{\text{Liability Premium} + \text{Comprehensive Premium} + \text{Collision Premium}}{\text{Annual Base Premium}}$
How do I calculate the <b>annual premium</b> ?	$\frac{\text{Annual Base Premium} \times \text{Driver-Rating Factor}}{\text{Annual Premium}}$



The federal government has estimated that driver distraction, which includes eating, dialing radio buttons, and talking, causes 20 to 30 percent of all accidents.



# Living in the Real World

## A Hard One to Pick

**Cover Your Bumper (and More)** Gomez discusses insurance with her friend, Jorge Leon, who is an insurance agent. Leon tells Gomez that with the purchase of a new vehicle, the cost of her insurance will increase. She's driven her truck for so long, she has no idea how much it costs to insure a new vehicle. In fact, she's never even had collision insurance and now she'll need comprehensive insurance.

**Draw Conclusions** Why might Gomez never have had collision insurance on her old truck?

*Continued on page 327*



### Example 1

Della Welch is the principal operator of her vehicle. Her driver-rating factor is 2.20. Her insurance includes 50/100 bodily injury and \$50,000 property damage. Her vehicle is in age group A and insurance-rating group 13 (or A, 13). She has \$50-deductible comprehensive and \$50-deductible collision insurance. What is her annual base premium? What is her annual premium? (You'll need to use Figure 9.3 to find important information for the problem.)

Figure 9.3

Liability Premium						
Property Damage Limits	Bodily Injury Limits					
	25/50	25/100	50/100	100/200	100/300	300/300
\$ 25,000	\$206.40	\$218.80	\$213.20	\$252.00	\$258.00	\$286.80
50,000	212.40	224.80	237.20	258.00	264.00	293.20
100,000	220.80	233.20	245.60	266.40	272.40	301.20

  

Physical Damage Premium							
Coverage	Age Group	Insurance-Rating Group					
		10	11	12	13	14	15
Comprehensive \$50-Deductible	A	\$76.80	\$81.60	\$95.20	\$108.00	\$122.00	\$135.60
	B	65.20	77.60	90.40	102.40	115.60	128.40
	C	62.00	74.00	86.00	98.00	110.40	122.80
	D	59.20	70.40	82.00	93.20	105.20	116.80
Collision \$50-Deductible	A	\$225.60	\$246.00	\$266.80	\$287.20	\$307.60	\$328.00
	B	214.00	233.20	253.20	272.40	291.60	311.20
	C	204.00	222.80	241.60	260.00	278.40	296.80
	D	194.40	212.00	230.00	247.60	265.20	282.80

Need Help? Go to...

- Workshop 6:  
Multiplying  
Decimals, page 14
- Skill 8: Multiplying  
Decimals, page 735

**STEP 1: Find the annual base premium.**

$$\begin{array}{r} \text{Liability} \quad + \quad \text{Comprehensive} \quad + \quad \text{Collision} \\ \text{Premium} \quad + \quad \text{Premium} \quad + \quad \text{Premium} \\ \$237.20 \quad + \quad \$108.00 \quad + \quad \$287.20 \\ = \$632.40 \text{ annual base premium} \end{array}$$

**STEP 2: Find the annual premium.**

$$\begin{array}{r} \text{Base Premium} \quad \times \quad \text{Driver-Rating Factor} \\ \$632.40 \quad \times \quad 2.20 \\ = \$1,391.28 \text{ annual premium} \end{array}$$



$$237.2 + 108 + 287.2 = 632.4 \times 2.2 = 1391.28$$

### CONCEPT CHECK

SELF-CHECK ✓

Complete the problem, then check your answers at the end of this chapter. Find the annual base premium and the annual premium.

1. Bodily injury 25/100 and \$100,000 property damage.  
Car is in age group C and insurance-rating group 10 (or C, 10).  
A \$50-deductible comprehensive and a \$50-deductible collision.  
Driver-rating factor is 1.50.

### Example 2

Soseki Nagamatus has a driver-rating factor of 3.1. His insurance includes 100/300 bodily injury limits and \$100,000 property damage limits. His vehicle is in age group B and insurance-rating group 15 (B, 15). He has a \$50-deductible comprehensive and a \$50-deductible collision insurance. What is his annual base premium? What is his annual premium? (You'll need to use Figure 9.3 on page 324 to find important information for the problem.)

**STEP 1: Find the annual base premium.**

$$\begin{array}{r} \text{Liability} \quad + \quad \text{Comprehensive} \quad + \quad \text{Collision} \\ \$272.40 \quad + \quad \$128.40 \quad + \quad \$311.20 \\ = \$712.00 \text{ annual base premium} \end{array}$$

**STEP 2: Find the annual premium.**

$$\begin{array}{r} \text{Base Premium} \quad \times \quad \text{Driver-Rating Factor} \\ \$712.00 \quad \times \quad 3.1 \\ = \$2,207.20 \text{ annual premium} \end{array}$$

### CONCEPT CHECK

SELF-CHECK ✓

Complete the problem, then check your answers at the end of this chapter.

2. J.J. Briner has a driver-rating factor of 4.10. His insurance includes 25/50 bodily injury limits and \$25,000 property damage limits. His truck is in age group D and insurance rating group 12. He has a \$50-deductible comprehensive and a \$50-deductible collision insurance. What is his annual base premium? What is his annual premium?

## SECTION 9-4 PRACTICE

- 3.** Driver-rating factor is 1.30.  
Age group A and insurance-rating group 14.  
Coverage: 50/100 bodily injury.  
Has \$25,000 property damage.  
Has \$50-deductible comprehensive.  
Has \$50-deductible collision.  
**a.** What is the annual base premium?  
**b.** What is the annual premium?
- 4.** Driver-rating factor is 1.60.  
Age group D and insurance-rating group 12.  
Coverage: 100/300 bodily injury.  
Has \$50,000 property damage.  
Has \$50-deductible comprehensive.  
Has \$50-deductible collision.  
**a.** What is the annual base premium?  
**b.** What is the annual premium?
  
- 5.** Paula Williams uses her vehicle primarily for pleasure. She has \$50-deductible comprehensive, \$50-deductible collision, 100/200 bodily injury, and \$25,000 property damage coverage. Because of her excellent driving record, her driver-rating factor is 1.00. Her vehicle is classified as D, 14. What is her annual base premium? What is her annual premium?
- 6.** Scott Hanson uses his minivan primarily for business. He has \$50-deductible comprehensive, \$50-deductible collision, 300/300 bodily injury, and \$100,000 property damage coverage. Because of his business use, his driver-rating factor is 3.35. His vehicle is classified B, 15. What is his annual base premium? What is his annual premium?
- 7.** Magdalena Diaz uses her sports utility vehicle (SUV) mainly for pleasure. She has \$50-deductible comprehensive, \$50-deductible collision, 100/300 bodily injury, and \$50,000 property damage coverage. Her driver-rating factor is 2.15 and her SUV is classified as C, 15. What is her annual base premium? What is her annual premium?
- 8.** Carl Adams uses his station wagon to deliver office supplies. He has \$50-deductible comprehensive, \$50-deductible collision, 100/200 bodily injury, and \$50,000 property damage coverage. Because of the business use of his wagon, his driver-rating factor is 3.10. His station wagon is classified as D, 14. What is his annual base premium? What is his annual premium?
- 9.** Henry Rodriguez delivers bundles of firewood to retail outlets in his pickup truck. His driver-rating factor is 3.15. His insurance coverage includes 25/100 bodily injury and \$25,000 property damage. He has \$50-deductible comprehensive and \$50-deductible collision. His truck is in age group D and insurance-rating group 10. What is his annual base premium? What is his annual premium?
- 10.** Esther Miller-Kruse drives to and from work in her red sports car. Her driver-rating factor is 4.85. Her insurance coverage includes 300/300 bodily injury and \$100,000 property damage. She has \$50-deductible comprehensive and \$50-deductible collision. Her car is in age group A and insurance-rating group 13. What is her annual base premium? What is her annual premium?

## MAINTAINING YOUR SKILLS

**Add.**

**11.**  $429.45 + 87.92 + 6.48 + 73.35$       **12.**  $49.55 + 2.82 + 4.59 + 733.20$

**Multiply.**

**13.**  $1.25 \times 79.90$       **14.**  $2.40 \times 360$       **15.**  $3.90 \times 67.70$

Need Help? Go to...

► **Skill 5: Adding**  
Decimals, page 732

► **Skill 8: Multiplying**  
Decimals, page 735

## SECTION 9-5

# Operating and Maintaining a Vehicle

### Section Objective

Compute the total cost per mile of operating and maintaining a vehicle.

Many costs are involved in operating and maintaining a vehicle. You'll need to take these costs into consideration.

- **Variable costs** (such as gasoline and tires) increase the more you drive.
- **Fixed costs** (such as vehicle insurance, registration fees, and depreciation) remain about the same regardless of how many miles you drive.
- **Depreciation** is a decrease in the value of your vehicle because of its age and condition.

Remember that:

$$\text{Cost per Mile} = \frac{\text{Annual Variable Cost} + \text{Annual Fixed Cost}}{\text{Number of Miles Driven}}$$

## Living in the Real World

### A Hard One to Pick

**Don't Forget about the Other Fees Involved** Gomez continues to shop for various trucks at Tucker Motors. She keeps in mind the true cost of the truck is more than the just the sticker price and insurance.

**Draw Conclusions** What are some of the other costs she needs to take into consideration before buying a vehicle?

*Continued on page 330*

### Example 1

Ann Jones purchased a used vehicle for \$4,000 one year ago. She drove 9,000 miles during the year and kept a record of all her expenses. She estimates the vehicle's present value at \$3,200. What was the cost per mile for Jones to operate her vehicle last year?

Variable Costs		Fixed Costs	
Gasoline	\$745.24	Insurance	\$ 385.40
Oil changes	71.85	License/registration	76.25
Maintenance	114.36	Depreciation	800.00
New tire	41.75	(\$4,000 – \$3,200)	
<b>Total</b>	<b>\$973.20</b>	<b>Total</b>	<b>\$1,261.65</b>

*Continued on next page*

#### Need Help? Go to...

- **Workshop 7:** Dividing Decimals, page 16
- **Workshop 2:** Rounding Numbers, page 6
- **Skill 11:** Dividing Decimals, page 738
- **Skill 2:** Rounding Numbers, page 729

**STEP:** Find the cost per mile.

$$\begin{aligned} & \left( \begin{array}{c} \text{Annual} \\ \text{Variable Cost} \end{array} + \begin{array}{c} \text{Annual} \\ \text{Fixed Cost} \end{array} \right) \div \begin{array}{c} \text{Number of} \\ \text{Miles Driven} \end{array} \\ & (\$973.20 + \$1,261.65) \div 9,000 \\ & \$2,234.85 \div 9,000 \\ & = \$0.24831 \text{ or } \$0.25 \text{ per mile} \end{aligned}$$



$$\begin{aligned} & 973.2 + 1261.65 = \\ & 2234.85 \div 9000 = 0.248316666 \end{aligned}$$

### CONCEPT CHECK

SELF-CHECK

Complete the problems, then check your answers at the end of this chapter. Find the total cost and the cost per mile.

	Variable Cost	Fixed Cost	Miles Driven
1.	\$1,900.00	\$1,700.00	10,000
2.	\$2,137.26	\$2,491.24	12,000

### Example 2

Lucas Perry purchased a new four-door car 2 years ago at a price of \$21,750. *Kiplinger* estimates it is worth \$13,920 today. The *Complete Car Cost Guide* computes the annual variable cost to be \$595.20 per year with insurance costing \$1,461 per year. Perry paid \$112.60 for license and registration fees and drove 16,500 miles during the year. After computing the depreciation and the total annual cost, find the cost per mile.

**STEP 1:** Find the depreciation.

Purchase Price – Today's Worth

Number of Years Owned

$$\begin{aligned} & \frac{(\$21,750.00 - \$13,920.00)}{2} \\ & \frac{\$7,830.00}{2} = \$3,915.00 \end{aligned}$$

**STEP 2:** Find the total annual cost.

$$\$595.20 + (\$1,461.00 + \$3,915.00 + \$112.60) = \$6,083.80$$

**STEP 3:** Find the cost per mile.

$$\begin{aligned} & \left( \begin{array}{c} \text{Annual} \\ \text{Variable Cost} \end{array} + \begin{array}{c} \text{Annual} \\ \text{Fixed Cost} \end{array} \right) \div \begin{array}{c} \text{Number of} \\ \text{Miles Driven} \end{array} \\ & \$6,083.80 \div 16,500 \\ & = \$0.3687 \text{ or } \$0.37 \text{ per mile} \end{aligned}$$

### CONCEPT CHECK

SELF-CHECK

Complete the problem, then check your answers at the end of this chapter.

- Sylvia McDowell purchased a new car 3 years ago for \$23,500.00. It's estimated worth now is \$18,700.00. Annual variable costs this year were \$995.60. This year insurance cost \$2,350.00, registration was \$132.50, and loan interest totalled \$1,080.00. She drove 13,540 miles this year. Compute the depreciation, annual costs, and cost per mile.

## SECTION 9-5 PRACTICE

Find the total annual cost and the cost per mile to the nearest cent.

$$\left( \begin{array}{c} \text{Annual} \\ \text{Variable Cost} \end{array} + \begin{array}{c} \text{Annual} \\ \text{Fixed Costs} \end{array} = \begin{array}{c} \text{Total} \\ \text{Annual Cost} \end{array} \right) \div \begin{array}{c} \text{Miles} \\ \text{Driven} \end{array} = \begin{array}{c} \text{Cost per} \\ \text{Mile} \end{array}$$

4.     \$1,000.00   +  \$1,250.00   =  **a.**                     ÷  9,000   =  **b.**
  5.     \$1,530.00   +  \$1,275.00   =  **a.**                     ÷  11,000   =  **b.**
  6.     \$2,114.00   +  \$3,786.00   =  **a.**                     ÷  14,700   =  **b.**
  7.     \$1,584.00   +  \$  934.35   =  **a.**                     ÷  6,800   =  **b.**
  8.     \$2,312.50   +  \$4,321.90   =  **a.**                     ÷  20,415   =  **b.**
9. A student drove 9,500 miles in his car last year.  
     Fixed costs totaled \$1,215.  
     Variable costs totaled \$1,985.  
     **a.** What was the total annual cost?  
     **b.** What was the cost per mile?
  10. A salesperson drove 34,500 miles in his car last year.  
     Fixed costs totaled \$3,860.  
     Variable costs totaled \$3,940.  
     **a.** What was the total annual cost?  
     **b.** What was the cost per mile?
  11. Hope Kocinski drove 12,200 miles in her car last year. Her variable costs totaled \$980.35. Her fixed costs totaled \$2,439.00. What was the cost per mile for her to operate her car?
  12. Alice Powers drove 13,550 miles in her car last year. Her variable costs totaled \$1,776.90. Her fixed costs totaled \$2,457.15. What was the cost per mile for her to operate her car?
  13. J. J. Olmstead drove 11,400 miles in his SUV last year. His variable costs totaled \$2,965.89. His fixed costs totaled \$2,884.26. What was the cost per mile for him to operate his SUV?

## MAINTAINING YOUR SKILLS

Round to the nearest hundredth.

- |                    |                    |                   |
|--------------------|--------------------|-------------------|
| <b>14.</b> 21.751  | <b>15.</b> 15.352  | <b>16.</b> 4.3981 |
| <b>17.</b> 15.9061 | <b>18.</b> 0.04126 | <b>19.</b> 0.3179 |

Divide. Round answers to the nearest hundredth.

- |                      |                        |                        |
|----------------------|------------------------|------------------------|
| <b>20.</b> 641 ÷ 200 | <b>21.</b> 1,500 ÷ 500 | <b>22.</b> 850 ÷ 9,000 |
|----------------------|------------------------|------------------------|

Need Help? Go to...

- ▶ **Skill 2: Rounding Numbers**, page 729
- ▶ **Skill 10: Dividing (Decimal Remainder)**, page 737



# SECTION 9-6 Leasing a Vehicle

## Section Objective

Calculate the total cost of leasing a vehicle.

Rather than purchase a vehicle, you might want to **lease** one. When you lease a vehicle, you make monthly payments to the leasing company, the dealer, or the bank for two to five years. You don't own the car; you're essentially renting the car. At the end of the lease, you either return the vehicle to the leasing company or you may purchase it.

The most common lease is a *closed-end lease*. With a closed-end lease, you make a specified number of payments, return the vehicle, and owe nothing (unless you damage the vehicle beyond fair wear and tear or exceed the mileage limit). If you do damage the vehicle or exceed the mileage limit, then you owe money to the leasing company.

Another type of lease is an *open-end lease*. At the end of an open-end lease, you can buy the vehicle for its residual value. The residual value is the expected value of the vehicle at the end of the lease period. The residual value is often established at the signing of the lease. With either lease—the closed-end lease or the open-end lease—you must pay all the monthly payments, a security deposit, title fee, and license fee.

Important Question	What Formula Do I Use?
How do I calculate the <b>total cost</b> of the lease?	$\text{Total Lease Cost} = (\text{Number of Payments} \times \text{Amount of Payment}) + \text{Deposit} + \text{Title Fee} + \text{License Fee}$

## Living in the Real World

### A Hard One to Pick

**Do You Want It to Be "Yours" or Not?** Gomez also knows that leasing a new truck is an option. She's not sure if it makes financial sense for her, considering that she uses her truck so much for work.

**Draw Conclusions** Why might she lease a vehicle instead of buying one?

*Continued on page 333*

### Example 1

Ralph Dunn leased a pickup truck for use in his lawn care business. He pays \$199 per month for 60 months. His deposit was \$2,500. He paid an \$80 title fee and a \$45 license fee. What is his total lease cost?

**STEP: Find the total lease cost.**

$$\begin{array}{r} \left( \begin{array}{l} \text{Number of} \\ \text{Payments} \end{array} \times \begin{array}{l} \text{Amount of} \\ \text{Payment} \end{array} \right) + \text{Deposit} + \text{Title} + \text{License} \\ \left( \begin{array}{l} 60 \\ \times \\ \$199 \end{array} \right) + \$2,500 + \$80 + \$45 \\ \$11,940 + \$2,500 + \$80 + \$45 \\ = \$14,565 \text{ total lease cost} \end{array}$$



$$60 \times 199 = 11940 + 2500 + 80 + 45 = 14565$$

### CONCEPT CHECK

SELF-CHECK ✓

Complete the problems, then check your answers at the end of this chapter. Find the total lease cost.

1. Convertible.  
Pays \$349.00 per month for 36 months.  
Deposit of \$3,000.00.  
Title fee of \$80.00.  
License fee of \$112.86.
2. Sedan.  
Pays \$250.00 per month for 39 months.  
Deposit of \$900.00.  
Title fee of \$75.00.  
License fee of \$54.95.

### Example 2

Tashira Conley leased a minivan for family use. She pays \$229.00 per month for 39 months. Her deposit was \$1,000.00. She paid a \$57.50 title fee and a \$48.50 license fee. What is her total lease cost?

**STEP: Find the total lease cost.**

$$\begin{array}{r} (39 \times \$229.00) + \$1,000.00 + \$57.50 + \$48.50 \\ \$8,931.00 + \$1,000.00 + \$57.50 + \$48.50 \\ = \$10,037.00 \text{ total lease cost} \end{array}$$

### CONCEPT CHECK

SELF-CHECK ✓

Complete the problem, then check your answer at the end of this chapter.

3. Marie Storholder leased a car for \$179 per month for 36 months. Her deposit was \$2,000, with a title fee of \$85 and a license fee of \$79. What is her total lease cost?

## SECTION 9-6 PRACTICE

For Problems 4–8, find the total of payments and the total lease cost.

	Number of Payments	×	Amount of Payment	=	Total of Payments	+	Deposit	+	Title Fee	+	License Fee	=	Total Lease Cost
4.	(24	×	\$219	=	a. )	+	\$ 419	+	\$ 8	+	\$36	=	b.
5.	(48	×	199	=	a. )	+	749	+	15	+	15	=	b.
6.	(48	×	119	=	a. )	+	1,200	+	60	+	75	=	b.
7.	(54	×	180	=	a. )	+	1,200	+	35	+	96	=	b.
8.	(60	×	374	=	a. )	+	1,500	+	66	+	55	=	b.

- |   |   |
|---|---|
| <p>9. Luxury car.<br/>Agreed to 48 payments of \$475.<br/>Deposit of \$475.<br/>Title fee of \$65.<br/>License fee of \$85.<br/>What is the total lease cost?</p> | <p>10. SUV.<br/>Agreed to 39 payments of \$279.95.<br/>Deposit of \$900.00.<br/>Title fee of \$60.00.<br/>License fee of \$69.95.<br/>What is the total lease cost?</p> |
|---|---|
11. Magarita Cervantes leased a truck for personal use. She pays \$239 a month for 48 months. She also paid a deposit of \$1,100, a title fee of \$90, and a license fee of \$125. What is the total lease cost?
12. Nadine Daniels leased a convertible for \$499 a month for 36 months. She paid a deposit of \$3,000, a title fee of \$125, and a license fee of \$365. What is the total lease cost?
13. Teneshia Cooper has an open-end lease for a SUV, which she uses for her fabric store. The lease costs \$339 a month for 60 months. She paid a deposit of \$2,500, a title fee of \$35, and a license fee of \$135. At the end of the lease, she can buy the vehicle for its residual value of \$9,446. What is the total lease cost? What is the total cost if she buys the vehicle?
14. Homer Gill leased a vehicle for \$199.00 a month for 48 months. He paid a deposit of \$225.00, a title fee of \$15.00, and a license fee of \$60.00. The lease carried a stipulation that there would be a \$0.10 per mile charge for all miles over 60,000. He drove the vehicle 68,515 miles. What is the total cost of leasing the vehicle?
15. Alicia Harper can lease a sedan for \$254.95 a month for 48 months. She must pay a deposit of \$250.00, a title fee of \$75.00, and a license fee of \$120.00. At the end of the 48 months, the vehicle is expected to be worth \$4,117.00. Instead of leasing, she can purchase the vehicle for \$278.96 a month for 48 months plus a \$978.00 down payment and the same title and license fees. What is less expensive: to lease or to purchase?

### MAINTAINING YOUR SKILLS

**Multiply.**

16.  $33.90 \times 5$

17.  $29.95 \times 4$

18.  $7 \times 54.65$

Need Help? Go to...

**Skill 8: Multiplying**  
Decimals, page 735

# SECTION 9-7 Renting a Vehicle

## Section Objective

Figure out the cost per mile of renting a vehicle.

From time to time you may need to **rent** a vehicle. Some vehicle rental agencies charge a daily rate plus a per-mile rate. Others charge a daily rate with no mileage charge. In either case, you pay for the gasoline used.

You might also have to pay for insurance on the rented vehicle. Often the insurance generally has a collision deductible clause that states that you will pay for a portion of any damage to the vehicle if it is in an accident. You can obtain complete insurance coverage with a collision waiver by paying an additional charge per day. How do you figure out how much you're paying per mile? Use this formula:

$$\text{Cost per Mile} = \frac{\text{Total Cost}}{\text{Number of Miles Driven}}$$

## Living in the Real World

### A Hard One to Pick

**Take It for a Test Drive** By now, Gomez is fairly certain she knows what model truck she wants to buy, the features she wants on it, and the price she's willing to pay. She'd just like to try it out for a week or so to get an idea if it's exactly what she needs for work. So she decides to rent the truck the way people rent cars.

**Draw Conclusions** Why is it important to test drive or rent the truck she is interested in buying?

*Continued on page 337*

### Example 1

Joe Wozniak rented a car for 3 days at \$39.95 per day plus \$0.20 per mile. He purchased the collision waiver for \$10.00 per day. Wozniak drove 468 miles and paid \$36.70 for gasoline. What was the total cost of renting the car? What was the total cost per mile to rent the car?

#### STEP 1: Find the total cost.

Daily cost:	$\$39.95 \times 3 =$	\$119.85
Mileage cost:	$\$0.20 \times 468 =$	93.60
Gasoline cost:		36.70
Collision waiver:	$\$10.00 \times 3 =$	30.00
Total cost		<u>\$280.15 total cost</u>

#### STEP 2: Find the cost per mile.

$$\text{Total Cost} \div \frac{\text{Number of Miles Driven}}$$

$$\$280.15 \div 468 = \$0.598 \text{ or } \$0.60 \text{ per mile}$$



$$39.95 \times 3 = 119.85 \text{ M+ } .20 \times 468 =$$

$$93.6 \text{ M+ } 10 \times 3 = 30 \text{ M+ RM } 243.45 + 36.70 =$$

$$280.15 \div 468 = .598611111$$

**CONCEPT CHECK**

**SELF-CHECK**

Complete the problems, then check your answers at the end of this chapter.

Winona Simms rented a car for \$30.00 a day for 4 days plus \$0.22 per mile. Simms drove 430 miles and spent \$33.90 on gasoline.

1. Find the total cost.
2. Find the cost per mile.

**Example 2**

Miguel Alvarez rented a sedan for \$41.95 a day for 3 days. He paid \$0.20 per mile for all miles over 150 miles per day. He drove 186 miles the first day, 78 miles the second day, and 210 miles the third day. Gasoline cost him \$32.68. He paid \$12.50 per day for the collision waiver. Find the total cost and cost per mile for renting the sedan.

**STEP 1: Find the total cost.**

$$\begin{aligned}
 &(\$41.95 \times 3) + [\$0.20 \times (36 + 0 + 60)] + \$32.68 + (\$12.50 \times 3) \\
 &\quad \$125.85 \quad + \quad \quad \quad \$19.20 \quad \quad + \quad \$32.68 + \quad \$37.50 \\
 &= \mathbf{\$215.23 \text{ total cost}}
 \end{aligned}$$

**STEP 2: Find the cost per mile.**

$$\begin{aligned}
 &\$215.23 \div (186 + 78 + 210) \\
 &\$215.23 \div \quad \quad \quad 474 \quad \quad = \mathbf{\$0.45407 \text{ or } \$0.45 \text{ cost per mile}}
 \end{aligned}$$

**CONCEPT CHECK**

**SELF-CHECK**

Complete the problem, then check your answers at the end of this chapter.

3. William LaFrance rented a van for \$45.50 a day for 5 days. The mileage charge was \$0.25 a mile over 120 miles per day. He drove 112, 162, 95, 180, and 144 miles for the days rented. Gasoline cost \$77.88. He paid \$15.50 per day for the collision waiver. Find the total cost and cost per mile for renting the van.

**SECTION 9-7 PRACTICE**

Solve. Find the cost per mile to the nearest cent.

	Total Daily Cost	+	Total Mileage Cost	+	Gasoline Cost	=	Total Cost	÷	Miles Driven	=	Cost per Mile
4.	(\$160.00	+	\$94.00	+	\$33.89	=	a. )	÷	500	=	b.
5.	( 119.95	+	74.40	+	50.53	=	a. )	÷	620	=	b.
6.	( 159.95	+	63.55	+	41.67	=	a. )	÷	420	=	b.



## SECTION 9-1

## CONCEPT CHECK (p. 315)

- $\$11,080 + (\$340 + \$800 + \$925) + \$499 = \$13,644$
- $\$13,655 + (\$1,220 + \$650) + \$749 = \$16,274$
- $\$22,245 + (\$1,186 + \$204 + \$336) + \$715 = \$24,686$
- $\$16,725 + (\$860 + \$710 + \$220) + \$465 = \$18,980$

## SECTION 9-2

## CONCEPT CHECK (p. 318)

- $(\$53,105 \times 88\%) + (\$1,785 \times 90\%) + \$340 = \$48,678.90$
- $(\$23,855 \times 90.5\%) + (\$2,256 \times 87\%) + \$610 = \$24,161.50$

## SECTION 9-3

## CONCEPT CHECK (p. 321, 322)

- $\$13,050 + (\$125 + \$340 + \$225 + \$125) + \$525 = \$14,390$
- $\$12,000 + (\$100 + \$300 + \$375 + \$100) - \$1,400 = \$11,475$

## SECTION 9-4

## CONCEPT CHECK (p. 325)

- Annual base premium: **\$499.20**, Annual premium: **\$748.80**
- Annual base premium:  $\$206.40 + \$82.00 + \$230.00 = \$518.40$   
Annual premium:  $\$518.40 \times 4.10 = \$2,125.44$

## SECTION 9-5

## CONCEPT CHECK (p. 328)

- Total cost: **\$3,600**, Cost per mile: **\$0.36**
- Total cost: **\$4,628.50**, Cost per mile: **\$0.3857 or \$0.39**
- Depreciation:  $\$4,800 \div 3 = \$1,600$   
Variable cost: **\$995.60**  
Fixed cost:  $(\$1,600.00 + \$2,350.00 + \$132.50 + \$1,080.00) = \$5,162.50$   
Total cost: **\$6,158.10**  
Cost per mile: **\$0.46**

## SECTION 9-6

## CONCEPT CHECK (p. 331)

- \$15,756.86**
- \$10,779.95**
- \$8,608.00**

## SECTION 9-7

## CONCEPT CHECK (p. 334)

- $(\$30.00 \times 4) + (\$0.22 \times 430) + \$33.90 = \$248.50$
- $\$248.50 \div 430 = \$0.577 \text{ or } \$0.58$
- $(\$45.50 \times 5) + (\$0.25 \times 126) + \$77.88 + (\$15.50 \times 5)$   
 $\$227.50 + \$31.50 + \$77.88 + \$77.50 = \$414.38$   
 $\$414.38 \div (112 + 162 + 95 + 180 + 144) =$   
 $\$414.38 \div 693 = \$0.59795 \text{ or } \$0.60$

## Living in the Real World

### A Hard One to Pick

**Analyze the Story** Gomez's new truck will depreciate in value most rapidly since it's new. You can estimate how your vehicle will depreciate by looking at the value of older vehicles of the same model.

Maintenance and repair costs tend to increase as a vehicle ages. You can estimate these costs by talking with mechanics and with people who own the same model. Consumer and automobile magazines sometimes have articles comparing these costs for various models.

**Calculating.** Imagine Gomez loses 18 percent of the truck's purchase price (less tax) the first year, 15 percent of its purchase price (less tax) the second year, and 12 percent the third year.

- What is the total percent?
- How much will the truck be worth in 3 years?
- What is the average depreciation a month?

**Determining.** Gomez plans to drive it 12,000 miles per year. Gasoline costs \$1.295 per gallon. Her new truck gets 20 miles per gallon. What is the cost of her gasoline per month?

### After YOU READ

#### REVIEW OF KEY WORDS

sticker price (p. 314)

base price (p. 314)

options (p. 314)

destination charge (p. 314)

dealer's cost (p. 317)

used-vehicle guides (p. 320)

liability insurance (p. 323)

comprehensive insurance (p. 323)

collision insurance (p. 323)

deductible clause (p. 323)

variable costs (p. 327)

fixed costs (p. 327)

depreciation (p. 327)

lease (p. 330)

rent (p. 333)

Use one of the key words above in each of the sentences.

1. A decrease in the value of your car because of its age or condition is called \_\_\_\_\_.
2. If you do not own an automobile but need to use one on occasion, you can \_\_\_\_\_ one from a rental agency.
3. The \_\_\_\_\_ in your insurance policy states that you must pay a portion of any repair bill.
4. The \_\_\_\_\_ is the cost of shipping the vehicle from the factory to the dealership.
5. The total of the base price, the options price, and the destination charge is the \_\_\_\_\_.
6. The \_\_\_\_\_ is often reported as a percent of the sticker price.
7. The \_\_\_\_\_ give the average prices for vehicles that were purchased from dealers during the previous month.
8. \_\_\_\_\_ on your vehicle protects you from losses caused by fire, vandalism, and theft.
9. Gasoline and tires are examples of \_\_\_\_\_.
10. Insurance, registration fees, and depreciation are examples of \_\_\_\_\_.

### Skills and Concepts

#### SECTION OBJECTIVE 9-1 AND EXAMPLES

Compute the sticker price of a new vehicle.

Timothy Darling wants to buy a new car. He has been pricing a new car that has a base price of \$18,705.00. He is interested in several options that total \$4,326.54. The destination charge is \$654.00. Find the sticker price.

**STEP:** Find the sticker price.  $\text{Base Price} + \text{Options} + \text{Destination Charge} = \$23,685.54$   
 $\$18,705.00 + \$4,326.54 + \$654.00$  sticker price

**REVIEW EXERCISES**

Find the sticker price.

	Base Price	Options	Destination Charge	Sticker Price
11.	\$11,500	\$1,750	\$450	
12.	12,430	2,390	340	
13.	15,400	3,244	458	
14.	21,000	4,459	654	

#### SECTION OBJECTIVE 9-2 AND EXAMPLES

Calculate the dealer's cost of a new vehicle.

Hal O'Brien wants to purchase a new sports car. The car has a base price of \$25,000, options totaling \$2,190, and a destination charge of \$643. He read in a consumer magazine that the dealer's cost for the car was about 91 percent of the base price and 87.5 percent of the options price. What should he estimate as the dealer's cost?

**STEP 1:** Find the percent of the base price.  $\$25,000.00 \times 91.0\% = \$22,750.00$  base price

**STEP 2:** Find the percent of the options price.  $\$2,190.00 \times 87.5\% = \$1,916.25$  options price

**STEP 3:** Find the dealer's cost.

$\text{Percent of Base Price} + \text{Percent of Options Price} + \text{Destination Charge} = \$25,309.25$   
 $\$22,750.00 + \$1,916.25 + \$643.00$  dealer's cost

**REVIEW EXERCISES**

Find the dealers cost.

	(Base Price × Dealer's Percent)	+	(Options Price × Dealer's Percent)	+	Destination Charge	=	Dealer's Cost
15.	\$13,500 × 90%	+	\$3,500 × 85%	+	\$450	=	
16.	11,600 × 88%	+	2,300 × 91%	+	362	=	
17.	21,500 × 82%	+	4,500 × 76%	+	782	=	
18.	32,000 × 86%	+	3,400 × 81%	+	654	=	

## SECTION OBJECTIVE 9-3 AND EXAMPLES

Figure out the average retail price of a used vehicle.

A used vehicle is advertised for \$13,490. It has air-conditioning, power seats, and a power sunroof. These options add an additional \$1,020. It has 85,000 miles and the used-vehicle guide recommends \$540 be subtracted if the mileage exceeds 30,000. What is the average retail price for this used vehicle?

**STEP:** Find the average retail price.

$$\begin{array}{rcccccc}
 \text{Average} & + & \text{Additional} & - & \text{Option} & - & \text{Mileage} \\
 \text{Retail Value} & & \text{Options} & & \text{Deductions} & & \text{Deduction} \\
 \$13,490 & + & \$1,020 & - & \$0 & - & \$540 & = \$13,970 \text{ average retail price}
 \end{array}$$

### REVIEW EXERCISES

19. A four-wheel drive vehicle has an average retail price of \$14,500. Add \$150 for a tilt steering wheel. Add \$700 for air conditioning. Deduct \$600 for manual transmission. Deduct \$560 for excessive mileage. What is the average retail price?
20. Donald Alsott owns a compact car, which he wants to trade in for a new car. He is interested in knowing the average wholesale price. He uses the Internet and finds out that the average wholesale price is \$2,600. He adds \$100 for power windows and \$50 for a tilt steering wheel. He deducts \$600 for no air-conditioning. What is the average wholesale price?
21. A two-year-old convertible has an average retail value of \$14,800. Add \$300 for a sunroof. Add \$150 for a CD player. Deduct \$560 for excessive mileage. What is the average retail price?
22. A five-year-old luxury vehicle has an average retail value of \$17,800. Add \$450 for a tilt steering wheel. Add \$400 for a surround-sound speaker system. Deduct \$660 for excessive mileage. What is the average retail price?
23. Carol Pelfrey owns a three-year-old sedan. One used-vehicle guide shows that the average retail value of her car is \$8,500. She adds \$100 for power windows and \$125 for power seats. She also adds \$450 for low mileage. However, she deducts \$150 for a broken trunk lock. What is the average retail price for her car?

## SECTION OBJECTIVE 9-4 AND EXAMPLES

Use tables to compute the annual premium for vehicle insurance.

Use Figure 9.3 on page 324 to solve the following problems.

Sheryl Edwards has a driver-rating factor of 2.1. Her insurance includes 100/200 bodily injury and \$25,000 property damages. Her vehicle is in age group C and insurance-rating group 12 (C, 12). She has a \$50-deductible comprehensive and \$50-deductible collision insurance. What is her annual base premium? What is her annual premium?

**STEP 1:** Find the annual base premium.

$$\begin{array}{rcccccc}
 \text{Liability Premium} & + & \text{Comprehensive Premium} & + & \text{Collision Premium} & & \\
 \$252.00 & + & \$86.00 & + & \$241.60 & = & \$579.60 \text{ annual} \\
 & & & & & & \text{base premium}
 \end{array}$$

*Continued on next page*

**STEP 2: Find the annual premium.**

$$\text{Base Premium} \times \text{Driver-Rating Factor} \\ \$579.60 \times 2.10 = \$1,217.16 \text{ annual premium}$$

**REVIEW EXERCISES**

24. Driver-rating factor is 1.45. Age and rating group is B, 11. Coverage: 50/100 bodily injury. \$50,000 property damage. \$50-deductible comprehensive. \$50-deductible collision. What is the annual base premium? What is the annual premium?
25. Yvette Ramirez uses her car to drive to and from work. Her driver-rating factor is 3.85. Her insurance coverage includes 100/300 bodily injury and \$100,000 property damage. Her car is in age group A and insurance-rating group 14. What is her annual base premium? What is her annual premium?

Use Figure 9.3 on page 324 to solve these problems.

	Driver-Rating Factor	Age, Rating Group	Bodily Injury	Property Damage	Comprehensive (Deductible)	Collision (Deductible)	Annual Base Premium	Annual Premium
26.	3.2	B, 12	50/100	\$ 50,000	\$50	\$50	a.	b.
27.	1.2	D, 14	100/300	100,000	50	50	a.	b.

**SECTION OBJECTIVE 9-5 AND EXAMPLES**

Compute the total cost per mile of operating and maintaining a vehicle.

Jackson McCormick purchased a used car a year ago. He drove 8,564 miles during the year and kept a record of all his expenses. He figured the annual variable cost to be \$1,342.90. His annual fixed costs were \$905.44. Find the cost per mile.

**STEP: Find the cost per mile.** 
$$\frac{\text{Annual Variable Cost} + \text{Annual Fixed Cost}}{\text{Number of Miles Driven}}$$

$$\frac{\$1,342.90 + \$905.44}{8,564} = \frac{\$2,248.34}{8,564} = \$0.2625 \text{ or } \$0.26 \text{ per mile}$$

**REVIEW EXERCISES**

28. Two years ago Ernest Dorsey purchased a 1997 vehicle for \$8,000.00, and it is worth \$6,000.00 today. Last year he drove it 13,569 miles and kept a record of all his expenses. His variable costs included gasoline, \$1,589.56; oil changes, \$245.98; and repairs, \$548.11. His fixed costs were insurance, \$1,105.32; and license, \$85.00. What is the cost per mile?

	Annual Variable Cost	Annual Fixed Cost	Total Annual Cost	Miles Driven	Cost per Mile
29.	\$1,300.00	\$3,287.33	a.	9,500	b.
30.	1,549.98	1,200.31	a.	11,500	b.
31.	1,139.45	2,300.88	a.	14,546	b.

## SECTION OBJECTIVE 9-6 AND EXAMPLES

Calculate the total cost of leasing a vehicle.

Penny Fountain leased a vehicle. She pays \$403.50 per month for 48 months. Her deposit was \$1,600. She paid a \$75 title fee and a \$55 license fee. What is her total lease cost?

**STEP:** Find the total lease cost.

$$\left( \begin{array}{c} \text{Number of} \\ \text{Payments} \end{array} \times \begin{array}{c} \text{Amount of} \\ \text{Payment} \end{array} \right) + \text{Deposit} + \begin{array}{c} \text{Title} \\ \text{Fee} \end{array} + \begin{array}{c} \text{License} \\ \text{Fee} \end{array} = \$21,098 \text{ total lease cost}$$

$$(48 \times \$403.50) + \$1,600 + \$75 + \$55 = \$21,098 \text{ total lease cost}$$

### REVIEW EXERCISES

Find the total of payments and the total lease cost.

	(Number of Payments)	×	Amount of Payment	=	Total of Payments	+	Deposit	+	Title Fee	+	License Fee	=	Total Lease Cost
32.	(24	×	\$189	=	a. )	+	\$ 660	+	\$10	+	\$35	=	b.
33.	(24	×	208	=	a. )	+	590	+	15	+	39	=	b.
34.	(30	×	316	=	a. )	+	1,240	+	35	+	55	=	b.
35.	(36	×	185	=	a. )	+	1,500	+	65	+	89	=	b.

## SECTION OBJECTIVE 9-7 AND EXAMPLES

Figure out the cost per mile of renting a vehicle.

Wheels & Deals had a rental car special last weekend on sedans for \$9.99 per day plus \$0.33 per mile. If Tonya Strickler rented one for 3 days, drove 865 miles, and paid \$62.08 for gas, what was the total cost of renting the sedan?

What was the total cost per mile to rent the vehicle?

**STEP 1:** Find the total cost.

$$\begin{array}{r} \$9.99 \times 3 \text{ days} = \quad \quad \quad \$ 29.97 \\ \$0.33 \times 865 \text{ miles} = \quad \quad \quad 285.45 \\ \text{Gasoline} = \quad \quad \quad \underline{62.08} \\ \hline \$377.50 \text{ total cost} \end{array}$$

**STEP 2:** Find the cost per mile.

$$\begin{array}{r} \text{Total Cost} \\ \hline \text{Number of Miles Driven} \\ \$377.50 \div 865 = \\ \$0.44 \text{ cost per mile} \end{array}$$

### REVIEW EXERCISES

Find the cost per mile to the nearest cent.

	(Total Daily Cost	+	Total Mileage Cost	+	Gasoline Cost	=	Total Cost	) ÷	Miles Driven	=	Cost per Mile
36.	(\$ 45.95	+	\$35.00	+	\$32.54	=	a. )	÷	365	=	b.
37.	( 110.00	+	39.95	+	58.87	=	a. )	÷	865	=	b.

Find the cost per mile to the nearest cent (no mileage charge).

	Rental Cost	Gasoline Cost	Total Cost	Miles Driven	Cost per Mile
38.	\$ 65.35	\$25.49	a.	409	b.
39.	115.85	54.39	a.	875	b.