Pre-Lesson Vocabulary Practice

Study the following terms and their meanings here and in the lesson itself. Next take turns with a partner choosing a term from the list and then giving the meaning. Finally, practice using the terms in sentences with a partner.

registered – officially counted and recorded

the automobile industry – the business of manufacturing and selling cars and other vehicles

keep a vehicle running/keep a car in good running order – maintain a vehicle so it works well

oil – the liquid used in a vehicle for lubrication

efficiency/efficient/efficiently – costing less money and giving better results

consumption – use

miles per gallon – miles driven for each gallon of gasoline used

filter – a part used in a vehicle to keep the oil clean

license plates – the tag that identifies a vehicle

leases – rents or borrows

worn – damaged from a lot of use

automobile club membership – to be a member of an association that helps automobile owners

rare/collectible – refers to older cars usually in good condition

resale value – what an item is worth when sold again

Study the pictures and related terms below. Next take turns with a partner: cover each term and point to the picture, and see if he or she can say the corresponding term.

| sedan | pick-up truck | SUV | two-door compact |

Lesson 16
Car Expenses

The population of the U.S. is now over 280 million people. There are over 130 million registered automobiles in the U.S. This means that there is almost one car for every two people. In most communities the **public transportation** system is not adequate for moving people from their homes to their jobs, schools, shops, and other places people go. A car is often an expensive necessity.

The automobile industry offers many choices: two-door compacts, four-door sedans, station wagons, minivans, sport-utility vehicles (SUVs), and trucks. The prices and maintenance costs for vehicles differ widely.

To keep a vehicle running, an owner has to buy fuel—either **gasoline** or **diesel**—and change the oil from time to time. The price of fuel varies according to worldwide production levels. The amount of fuel that a car uses depends on both the number of miles driven and the efficiency of the car's engine. A **fuel-efficient** car uses relatively little gasoline. **Fuel** consumption is measured in **miles per gallon** (mpg). All cars use fuel more efficiently on highways than in cities, where drivers must start and stop frequently.

Example 1 Celeste drove her new car 15,000 miles last year. Her records show that she bought a total of 525 gallons of gasoline during the year. To the nearest tenth, what average number of miles did Celeste drive on a gallon of gasoline?

Solution Divide the total number of miles she drove by the number of gallons of gasoline that she bought.

$$15,000 \div 525 = 28.57\ldots \text{ or } 28.6 \text{ mpg}$$

The label **mpg** (miles per gallon) is a clue to the solution to the last problem. The word *per* suggests division. To find the fuel efficiency of a vehicle, divide the number of miles by the number of gallons.

Example 2 Celeste bought gasoline at an average price of $1.58 a gallon. How much did she spend on gasoline for the year?

Solution Multiply the total number of gallons by the cost of one gallon of gasoline.

$$525 \times \$1.58 = \$829.50$$

Example 3 Celeste takes her car into the dealer for an oil and filter change every 2,500 miles. Her dealer charges $24.95 for this service. In the year when she drove 15,000 miles, how much did Celeste spend on oil changes?

Solution Find how many times 2,500 divides into 15,000.

$$15,000 \div 2,500 = 6 \text{ times}$$

Multiply the cost of servicing the car by 6.

$$6 \times \$24.95 = \$149.70$$

Car owners have several expenses that have nothing to do with keeping their cars in good running order. A car owner has to pay a **registration fee**, a fee for **license plates**, and **insurance costs**. (You will learn more about insurance in Lesson 17.) If the owner borrowed money to buy the car, he or she has to make monthly payments on the loan, and if the driver leases the car, he or she has to make monthly leasing payments.

Example 4 Celeste took out a loan to buy her new car. The first year she spent $648 in interest on her loan. She also paid $1,150 for insurance and $935 in sales tax and registration fees. Find the total of these costs.

Solution Add the costs.

$$\$648 + \$1,150 + \$935 = \$2,733$$

Celeste paid $2,733.

A car owner has to pay for regular maintenance, for occasional repairs, and for the replacement of worn parts. For new cars, the cost of maintenance and repairs is usually low. As a car gets older, these costs tend to rise. A car owner may also have to pay tolls for driving on highways, garage rent, parking lot fees, parking meter fees, automobile club membership fees, and occasional charges for cleaning.

One of the biggest expenses for car owners is **depreciation**. As you learned in the last lesson, houses normally increase in value over a period of years. A house is an *appreciating* asset. A car is the opposite. A car loses value as soon as it leaves a dealer's lot. A car is a *depreciating* asset. In other words, if an owner sells new car a year after he or she bought it, he or she will have to sell it for much less than was originally paid.

Example 5   The car that Celeste bought cost $15,090. Celeste took good care of her car, but one year after she purchased it, the car was worth only $10,940. By what percent did the value of Celeste's car depreciate in one year?

Solution   Find the amount of the first year's depreciation; subtract the two values.

$$\$15,090 - \$10,940 = \$4,150$$

Find the percent of change in the values.

$$\frac{\$4,150}{\$15,090} = 0.275... \text{ or about } 28\%$$

Some cars depreciate faster than others. Except for a few old cars that are thought of as collectibles, most cars lose value. A car buyer should think about the cost of depreciation whenever she thinks about the cost of a new car.

Note: Gasoline prices rise and fall. The prices in this book may be quite different from current prices.

To solve the problems in the next exercise, review:

- adding, subtracting, multiplying, and dividing decimals, pages 230–231

- finding a percent of a number, page 237

- finding what percent one number is of another, page 238

Exercise 16

Use a calculator to solve any of these problems.

Part A

1 Serena drove 920 miles on 33 gallons of gasoline. To the nearest tenth of a mile, how many miles did she get on one gallon of gasoline?

Part B

Use the following information to answer problems 2 to 4.

SITUATION

In one year Riley drove 12,164 miles. That year he bought 723 gallons of gasoline for which he paid $1,128.

2 What average price did Riley pay for a gallon of gasoline?

3 To the nearest tenth, what is the fuel efficiency of Riley's car? In other words, what average number of miles did he drive on one gallon of gasoline?

4 Riley got an oil change every 3,000 miles. Each oil change cost $22.95. How much did he spend on oil changes during the year?

Part C

Use the following information to answer problems 5 to 7.

SITUATION

Lucy drove 9,708 miles one year. She bought 266 gallons of gasoline and paid $434 for the gasoline.

5 What average price did Lucy pay for a gallon of gasoline?

6 To the nearest tenth, how many miles did Lucy drive on a gallon of gasoline?

7 Lucy got three oil changes during the year. On average, how many miles did she drive before getting an oil change?
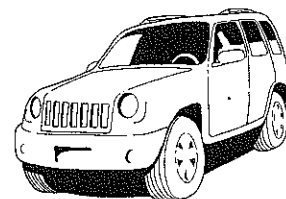
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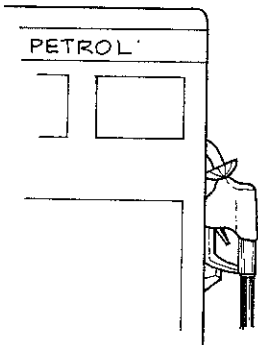
Part D

Use the following information to answer problems 8 to 12.

SITUATION

Larry's car gets 26 miles per gallon when he drives in the city and 34 miles per gallon when he drives on highways. Larry drove 10,973 miles last year. 80% of his driving was on highways.

8 How many miles did Larry drive on highways last year? Round your answer to the nearest mile.

9 How many miles did Larry drive in cities last year? Round your answer to the nearest mile.

10 How many gallons of gasoline did Larry use driving on highways? Round your answer to the nearest gallon.

11 How many gallons of gasoline did Larry use driving in cities? Round your answer to the nearest gallon.

12 At an average cost of $1.499 per gallon, how much did Larry spend on gasoline during the year?

Part E

Use the following information to answer problems 13 and 14.

SITUATION

Guadalupe paid $5,999 for a used car. The chart below shows the amount that Guadalupe can expect the value of her car to depreciate each year.

First Year	Second Year	Third Year	Fourth Year	Fifth Year
$1,050	$900	$775	$650	$550

13 What total amount will the car depreciate in five years?

14 What will be the resale value of Guadalupe's car in five years?

Part F

Use the following information to answer problems 15 to 17.

SITUATION

José bought a new car for $18,699. The table below shows
the expenses José had for the first year.

interest charges on car loan	$ 780
sales tax and fees	$1,339
insurance	$1,190
fuel	$1,204
maintenance and repairs	$ 724

15 What was the total of the expenses for José's car the first year?

16 The value of José's car depreciated $8,800 the first year. The first year's depreciation was what percent of the sale price of José's car?

17 Including depreciation, what were the total costs for José's car the first year he owned it?

Part G

Use the following table to answer problems 18 and 19.

Description	Purchase Price	Sale Value after 1 Year
4-year-old sedan	$ 6,298	$ 5,173
new SUV	$30,699	$18,949

18 By what percent did the value of the sedan depreciate after one year?

19 By what percent did the value of the new SUV depreciate after one year?

Post-Lesson Vocabulary Reinforcement

Choose terms from the list on the right to complete the sentences that follow.

❶ There are _____ 130 million registered automobiles in the U.S.

❷ In most communities the _____ is not adequate for moving people around.

❸ _____ is often an expensive necessity.

❹ To keep a vehicle running, an owner has to buy _____—either gasoline or diesel.

❺ The word *per* as in *per gallon* suggests _____.

❻ A _____ car uses relatively little gasoline or fuel.

❼ Car owners have several _____ that have nothing to do with keeping their cars in good running order—for example, registration fees.

❽ Rare, old cars don't _____ as fast as others.

a car

more than

public transportation system

fuel

division

expenses

fuel-efficient

depreciate

Here's a vocabulary game. Use words from this lesson. Follow the steps.

Step One: Write one letter on each blank line below.

❾ The U.S. population is now over 280 __ __ __ __ __ ☐ ☐ people.

❿ *Shops* is another word for __ __ __ __ ☐ __.

⓫ Drivers must stop and start __ ☐ __ __ __ __ __ __ __ __.

⓬ ☐ __ __ __ or damaged parts on vehicles have to be repaired or replaced.

Step Two: Copy the letters from each box above:

⓭ __ __ __ __ __

Step Three: Move the letters around until they spell another word from this lesson. Use it to complete this question:

⓮ Are you a car _____? Answer the question and share both of your answers with a classmate.

Answers are on page 272.