

# 4.3 Interest Tables

## GOALS

- Calculate interest using simple interest tables
- Find the due date of a note
- Find the number of days between dates

### Start Up

You started a marathon race at 9:15 a.m. and finished at 3:08 p.m. What was your elapsed time for running the race?



### Math Skill Builder

Review these math skills and solve the exercises.

**1 Divide by 100.**

Find the quotient.  $\$7,200 \div \$100 = 72$

1a.  $\$890 \div \$100$

1b.  $\$12,089 \div \$100$

1c.  $\$103,278 \div \$100$

**2 Multiply money amounts by decimals and round to nearest cent.**

Find the product.  $\$475 \times 0.6283 = \$298.442$ , or  $\$298.44$

2a.  $\$1,800 \times 0.4186$

2b.  $\$943 \times 0.5289$

2c.  $\$11,093 \times 0.3752$

**3 Add and Subtract whole numbers.**

Find the sum.  $16 + 31 = 47$

Find the difference.  $31 - 9 = 22$

3a.  $30 - 12$

3b.  $31 - 16$

3c.  $5 + 31 + 28$

3d.  $15 + 30 + 31 + 8$

## ■ Simple Interest Tables

Most banks use computers or specially programmed calculators to find interest and calculate payment amounts on loans. However, some lenders use interest tables (like the one shown on the next page) as a quick reference chart.

The table shows the interest on \$100 for a 365-day year. To find the interest on any amount of money using the table, follow these steps:

1. To find the number of hundreds of dollars in the principal, divide the principal by \$100. Simply move the decimal in the principal two places to the left.
2. Use the number from the chart that matches your interest rate and time and multiply it by the number of hundreds in the principal.

## SIMPLE INTEREST TABLE

Interest on \$100 for a 365-Day Year

| Time (Days) | 8%     | 8½%    | 9%     | 9½%    | 10%    | 10½%   | 11%    | 11½%   | 12%    | 12½%   |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1           | 0.0219 | 0.0233 | 0.0247 | 0.0260 | 0.0274 | 0.0288 | 0.0301 | 0.0315 | 0.0329 | 0.0342 |
| 2           | 0.0438 | 0.0466 | 0.0493 | 0.0521 | 0.0548 | 0.0575 | 0.0603 | 0.0630 | 0.0658 | 0.0685 |
| 3           | 0.0658 | 0.0699 | 0.0740 | 0.0781 | 0.0822 | 0.0863 | 0.0904 | 0.0945 | 0.0986 | 0.1027 |
| 4           | 0.0877 | 0.0932 | 0.0986 | 0.1041 | 0.1096 | 0.1151 | 0.1205 | 0.1260 | 0.1315 | 0.1370 |
| 5           | 0.1096 | 0.1164 | 0.1233 | 0.1301 | 0.1370 | 0.1438 | 0.1507 | 0.1575 | 0.1644 | 0.1712 |
| 6           | 0.1315 | 0.1397 | 0.1479 | 0.1562 | 0.1644 | 0.1726 | 0.1808 | 0.1890 | 0.1973 | 0.2055 |
| 7           | 0.1534 | 0.1630 | 0.1726 | 0.1822 | 0.1918 | 0.2014 | 0.2110 | 0.2205 | 0.2301 | 0.2397 |
| 8           | 0.1753 | 0.1863 | 0.1973 | 0.2082 | 0.2192 | 0.2301 | 0.2411 | 0.2521 | 0.2630 | 0.2740 |
| 9           | 0.1973 | 0.2096 | 0.2219 | 0.2342 | 0.2466 | 0.2589 | 0.2712 | 0.2836 | 0.2959 | 0.3082 |
| 10          | 0.2192 | 0.2329 | 0.2466 | 0.2603 | 0.2740 | 0.2877 | 0.3014 | 0.3151 | 0.3288 | 0.3425 |
| 11          | 0.2411 | 0.2562 | 0.2712 | 0.2863 | 0.3014 | 0.3164 | 0.3315 | 0.3466 | 0.3616 | 0.3767 |
| 12          | 0.2630 | 0.2795 | 0.2959 | 0.3123 | 0.3288 | 0.3452 | 0.3616 | 0.3781 | 0.3945 | 0.4110 |
| 13          | 0.2849 | 0.3027 | 0.3205 | 0.3384 | 0.3562 | 0.3740 | 0.3918 | 0.4096 | 0.4274 | 0.4452 |
| 14          | 0.3068 | 0.3260 | 0.3452 | 0.3644 | 0.3836 | 0.4027 | 0.4219 | 0.4411 | 0.4603 | 0.4795 |
| 15          | 0.3288 | 0.3493 | 0.3699 | 0.3904 | 0.4110 | 0.4315 | 0.4521 | 0.4726 | 0.4932 | 0.5137 |
| 16          | 0.3507 | 0.3726 | 0.3945 | 0.4164 | 0.4384 | 0.4603 | 0.4822 | 0.5041 | 0.5260 | 0.5479 |
| 17          | 0.3726 | 0.3959 | 0.4192 | 0.4425 | 0.4658 | 0.4890 | 0.5123 | 0.5356 | 0.5589 | 0.5822 |
| 18          | 0.3945 | 0.4192 | 0.4438 | 0.4685 | 0.4932 | 0.5178 | 0.5425 | 0.5671 | 0.5918 | 0.6164 |
| 19          | 0.4164 | 0.4425 | 0.4685 | 0.4945 | 0.5205 | 0.5466 | 0.5726 | 0.5986 | 0.6247 | 0.6507 |
| 20          | 0.4384 | 0.4658 | 0.4932 | 0.5205 | 0.5479 | 0.5753 | 0.6027 | 0.6301 | 0.6575 | 0.6849 |
| 21          | 0.4603 | 0.4890 | 0.5178 | 0.5466 | 0.5753 | 0.6041 | 0.6329 | 0.6616 | 0.6904 | 0.7192 |
| 22          | 0.4822 | 0.5123 | 0.5425 | 0.5726 | 0.6027 | 0.6329 | 0.6630 | 0.6932 | 0.7233 | 0.7534 |
| 23          | 0.5041 | 0.5356 | 0.5671 | 0.5986 | 0.6301 | 0.6616 | 0.6932 | 0.7247 | 0.7562 | 0.7877 |
| 24          | 0.5260 | 0.5589 | 0.5918 | 0.6247 | 0.6575 | 0.6904 | 0.7233 | 0.7562 | 0.7890 | 0.8219 |
| 25          | 0.5479 | 0.5822 | 0.6164 | 0.6507 | 0.6849 | 0.7192 | 0.7534 | 0.7877 | 0.8219 | 0.8562 |
| 26          | 0.5699 | 0.6055 | 0.6411 | 0.6767 | 0.7123 | 0.7479 | 0.7836 | 0.8192 | 0.8548 | 0.8904 |
| 27          | 0.5918 | 0.6288 | 0.6658 | 0.7027 | 0.7397 | 0.7767 | 0.8137 | 0.8507 | 0.8877 | 0.9247 |
| 28          | 0.6137 | 0.6521 | 0.6904 | 0.7288 | 0.7671 | 0.8055 | 0.8438 | 0.8822 | 0.9206 | 0.9589 |
| 29          | 0.6356 | 0.6753 | 0.7151 | 0.7548 | 0.7945 | 0.8342 | 0.8740 | 0.9137 | 0.9534 | 0.9932 |
| 30          | 0.6575 | 0.6986 | 0.7397 | 0.7808 | 0.8219 | 0.8630 | 0.9041 | 0.9452 | 0.9863 | 1.0274 |
| 31          | 0.6795 | 0.7219 | 0.7644 | 0.8068 | 0.8493 | 0.8918 | 0.9342 | 0.9767 | 1.0192 | 1.0616 |

### EXAMPLE 1

Find the interest on \$850 for 20 days at 12%.

#### SOLUTION

Find the interest on \$100 for 20 days at 12%

\$0.6575 interest from the table

$\$850 \div \$100 = 8.5$  the number of \$100s in the principal

Multiply the interest by the number of 100s.

$\$0.6575 \times 8.5 = \$5.588$ , or \$5.59

#### PROBLEM SOLVING TIP

To avoid reading the wrong table amount, place a ruler or piece of paper under the line you need to read.

#### ■ CHECK YOUR UNDERSTANDING

- A. Find the interest on \$620 for 12 days at 10%.
- B. Find the interest on \$550 for 28 days at  $9\frac{1}{2}\%$

When the number of days you want is not shown in the table, you must combine multipliers to get the number.

### EXAMPLE 2

Find the interest on \$450 for 35 days at 8%.

#### SOLUTION

\$0.6575 interest on \$100 for 30 days at 8%

\$0.1096 interest on \$100 for 5 days at 8%

Add the interest for 30 days and 5 days

$\$0.6575 + \$0.1096 = \$0.7671$  interest on \$100 for 35 days

$\$450 \div \$100 = 4.5$  the number of \$100s in the principal

Multiply the interest for 35 days by the number of 100s in the principal.

$\$0.7671 \times 4.5 = \$3.452$ , or \$3.45

Interest for a rate not shown on the table can be found in much the same way. For example, the interest on \$100 @  $18\frac{1}{2}\%$  for 20 days is the sum of the amount for 9% (\$0.4932) and the amount for  $9\frac{1}{2}\%$  (\$0.5205).

### ■ CHECK YOUR UNDERSTANDING

- C. Find the interest on \$1,320 for 40 days at 10%.
- D. Find the interest on \$740 for 62 days at 12%
- E. Find the interest on \$350 for 30 days at 16%

### ■ Due Dates

When the time of a note is shown in months, you find the due date by counting that number of months forward from the date of the note. The due date is the same day in the month you stop with as the date of the note. If the date is the last day of the month, the note is due on the last date of the month in which the note is due. For instance, a 1-month note issued on January 31 would be due February 28 (or February 29 in a leap year).

The time of a note may be shown in days. In this case, you can find the due date by counting forward, from the date of the note, the number of days shown on the note.

#### PROBLEM SOLVING TIP

This old poem has been used by many to remember the number of days in the months:

*Thirty days hath  
September, April,  
June and November.*

*All the rest have  
thirty-one, except  
February, that  
has 28.*

### EXAMPLE 3

Find the maturity date of a 90-day note dated June 28.

#### SOLUTION

|                      |                        |
|----------------------|------------------------|
| 90 days              | length of note         |
| June <u>-2</u> days  | days left in June      |
| 88 days              |                        |
| July <u>-31</u> days | days in July           |
| 57 days              |                        |
| Aug. <u>-31</u> days | days in August         |
| 26 days              | Sept. 26 Maturity date |

#### SPREADSHEET TIP

Spreadsheets can display dates in many different formats, such as 12/25/04 and December 25, 2004. You can choose an alternate format if you do not like the default format used by your software.

#### ■ CHECK YOUR UNDERSTANDING

- F. Find the due date of a 3-month note dated March 6.
- G. Find the due date of a 2-month note dated March 31.
- H. Find the due date of a 60-day note dated January 15.

### ■ Days Between Dates

Sometimes you may need to find the number of days between two dates.

#### EXAMPLE 4

Find the number of days from June 14 to August 23.

#### SOLUTION

|                      |                  |
|----------------------|------------------|
| June 14 to June 30 = | 16 days          |
| July 1 to July 31 =  | 31 days          |
| August 1 to 23 =     | <u>+ 23</u> days |
| Total                | 70 days          |

#### SPREADSHEET TIP

Spreadsheets can be used to find the days between dates. Enter the first date in B1 and the other date in B2. Then in B3 enter: =B2 - B1. Next format B3 to display a number with no decimal places.

#### ■ CHECK YOUR UNDERSTANDING

- I. Find the number of days from January 28 to March 29.
- J. Find the number of days from July 3 to September 1.

### Wrap Up

Look back at the Start Up questions in this lesson. The elapsed time you found should have been 5 hours and 53 minutes. What does "elapsed time" mean? Explain the steps you took to determine elapsed time. Why do you need to find the elapsed time? Work with a partner. Have one person name a starting time or date and an ending time or date and the other find the elapsed time. Exchange roles and repeat.

# COMMUNICATION

Search the Web to find at least 4 calculators that you can use online. Include simple interest and compound interest calculators. Then, test each calculator by solving these two problems with them:

1. Find the simple interest on \$1,200 for  $\frac{1}{2}$  year at 12%.
2. Find the compound interest on \$1,200 for 1 year at 5% compounded monthly.

Prepare a report containing the name of each calculator, the major types of calculations it can handle, its Web address, the ease with which you can understand how to use it, and whether it answered the problems above correctly.

## EXERCISES

**Find the product or quotient.**

1.  $\$418 \div 100$
2.  $\$297 \times 0.2851$
3.  $\$310,790 \div \$100$
4.  $\$5,300 \times 0.9184$
5.  $\$51,280 \div \$100$
6.  $\$31,627 \times 0.5028$

**Find the sum or difference.**

7.  $735 - 382$
8.  $49 - 26$
9.  $9 + 31 + 30$
10.  $12 + 28 + 31 + 23$

**Use the Simple Interest Table to find the interest to the nearest cent.**

11. \$500 @ 8% for 20 days
12. \$380 @ 12% for 12 days
13. \$6,150 @ 9% for 25 days
14. \$275 @  $12\frac{1}{2}\%$  for 20 days
15. \$400 @  $9\frac{1}{2}\%$  for 45 days
16. \$725 @ 11% for 60 days
17. \$270 @ 18% for 120 days
18. \$540 @ 21% for 20 days
19. \$2,500 @ 20% for 30 days
20. \$900 @ 17% for 16 days

**Lucia Flores borrowed \$1,700 on a note for 60 days with interest at 12%.**

21. Using the Simple Interest Table, what interest did she pay?
22. What total amount did she owe when the note was due?

**Find the number of days between the given dates.**

23. January 5 to March 12
24. May 6 to August 22
25. February 23 to May 5
26. November 12 to January 29
27. September 6 to January 4
28. July 29 to August 8

Find the due date for each note. Assume February has 28 days.

| Date Issued     | Time     | Date Issued     | Time     |
|-----------------|----------|-----------------|----------|
| 29. February 12 | 1 month  | 30. November 14 | 2 months |
| 31. March 31    | 4 months | 32. March 31    | 3 months |
| 33. March 5     | 30 days  | 34. January 29  | 60 days  |
| 35. January 30  | 45 days  | 36. April 14    | 75 days  |
| 37. December 28 | 80 days  | 38. June 9      | 120 days |

**INTEGRATING YOUR KNOWLEDGE** On March 5, Jake Lowry signed a note for \$15,000 at 15% exact interest. He paid the note on June 3.

39. For how many days was interest due?
40. What amount of interest did Jake owe?
41. What was the total amount due on June 3?
42. On July 13, Rosa D'Lario borrowed \$9,000 to buy a new car for \$14,500. She signed a note with exact interest at 8%. If she paid 100% of the note off on September 24, what total amount did she owe?
43. **DECISION MAKING** You can borrow \$2,500 at 15% exact interest for 6 months from one lender. Another lender offers you a loan of \$2,500 at 14% exact interest for 8 months. Which loan is the better deal? Justify your decision.

## MIXED REVIEW

44.  $\frac{1}{8} + \frac{1}{6}$
45.  $2,078.01 - 43.098$
46.  $12\frac{1}{4} - 3\frac{1}{2}$
47. What amount is  $2\frac{1}{4}\%$  of \$900?
48. Find the due date of a 3-month note dated July 31.
49. Sandra Rollins discounted her \$2,890, 3-months, noninterest-bearing note at 18% at her bank on January 10. Find the proceeds of the note.
50. The interest on a loan of \$8,600 for 3 months is \$258. What is the rate of interest?
51. Jeanne Dixon is paid \$2.25 for each fan she assembles. During the five days of last week, she assembled these fans: 27, 28, 33, 30, 31. What was Jeanne's gross pay for the week?
52. Find the interest on \$745 for 25 days at 8% using the Simple Interest Table.



# 4.4 Installment Loans

## GOALS

- Calculate the installment price and finance charge on an installment plan purchase
- Calculate the number and amount of monthly payments
- Calculate the interest, principal payment, and new balance on an installment loan

### Start-Up

Darrel just graduated from high school. He needs a car to get a job but he also needs a job to get a car. What choices does Darrel have to solve his problem?

### Math Skill Builder

Review these math skills and solve the exercises that follow.

- 1 **Add and subtract** dollar amounts.

Find the sum.  $\$109.45 + \$29.01 = \$138.46$

Find the difference.  $\$244.21 - \$62.09 = \$182.12$

1a.  $\$1,905.34 + \$804.23$

1b.  $\$15,378.82 + \$598.38$

1c.  $\$5,074 - \$2,985$

1d.  $\$56.89 - \$12.98$

- 2 **Multiply** dollar amounts by whole numbers and decimals.

Find the products.  $\$34.19 \times 6 = \$205.14$  and  $\$106.80 \times 0.015 = \$1.602$ , or  $\$1.60$

2a.  $\$537 \times 8$

2b.  $\$1,790 \times 0.2$

2c.  $\$450 \times 0.045$

- 3 **Divide** dollar amounts by whole numbers and dollar amounts.

Find the quotients.  $\$340 \div 8 = \$42.50$  and  $\$56.30 \div \$500 = 0.1126$

3a.  $\$1,080 \div 12$

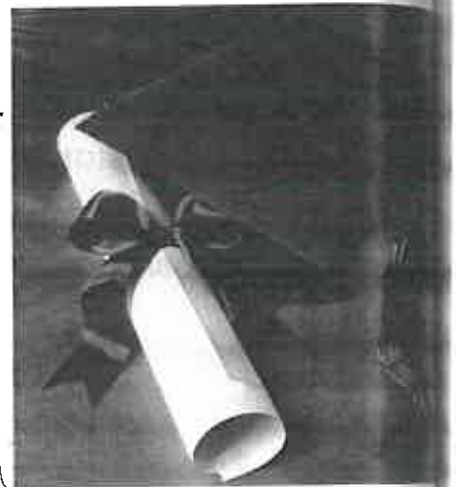
3b.  $\$36 \div \$1,200$

3c.  $\$171 \div \$3,800$

### ■ Installment Price and Finance Charge

Sound systems, boats, cars, furniture, and many other items are often bought on an installment plan, also called a time payment plan. When you buy on an *installment plan*, you are borrowing money and paying it back in part payments.

You may have to make a **down payment**, or part of the purchase price. You may also have to sign an *installment contract* in which you agree to pay the unpaid balance.





The installment price is higher than the cash price because the seller adds a **finance charge** to the cash price. This charge pays the seller interest on the money and covers the extra cost of doing business on the installment plan. The finance charge is the difference between the installment price and the cash price.

### EXAMPLE 1

A desktop computer system has a cash price of \$1,600. To buy it on an installment plan, you pay \$100 down and \$40 a month for 48 months. Find the finance charge. By what percent is the installment price greater than the cash price?

#### SOLUTION

Add the total of the monthly payments and the down payment to find the installment price.

$$\$40 \times 48 = \$1,920 \quad \text{total monthly payment}$$

$$\$1,920 + \$100 = \$2,020 \quad \text{installment price}$$

Subtract the cash price from the installment price to find the finance charge.

$$\$2,020 - \$1,600 = \$420 \quad \text{finance charge}$$

Divide the finance charge by the cash price to find the percent that the installment price is greater than the cash price.

$$\$420 \div \$1,600 = 0.2625, \text{ or } 26.25\% \text{ percent greater}$$

### CHECK YOUR UNDERSTANDING

- A. You can buy a watch for \$125 cash or pay \$25 down and the balance in 12 monthly payments of \$9. What is the installment price? By what percent would your installment price be greater than the cash price?
- B. A digital audio player that sells for \$169.95 can be bought for \$20 down and \$26.17 a month for 6 months. What is the installment price? By what percent, to the nearest tenth, does the installment price exceed the cash price?

## Monthly Installment Payments

Sometimes you may know the installment price and down payment and need to find the amount of the monthly payment or the number of months to pay.

### EXAMPLE 2

The installment price of a set of water skis is \$190. You must pay \$50 down and make payments for 16 months. What will be your monthly payments?

#### SOLUTION

Subtract the down payment from the installment price to find the remaining amount to pay.

$$\$190 - \$50 = \$140 \quad \text{remainder to pay}$$

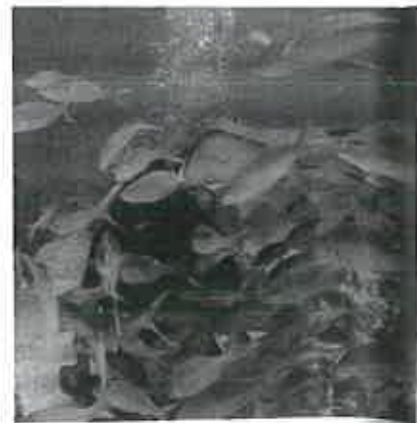
Divide the remaining amount to pay by the number of months to pay to find the monthly payment.

$$\$140 \div 16 = \$8.75 \quad \text{monthly payment}$$



## ■ CHECK YOUR UNDERSTANDING

- C. A scuba diver's wetsuit costs \$175 on the installment plan. You must make a down payment of \$25 and make payments for 15 months. What will be your monthly payments?
- D. A refrigerator sells for \$1,044 on the installment plan. After making a down payment of \$100, you pay \$59 a month. How many months will it take to pay for the refrigerator?



## ■ Installment Loans

Rather than pay a retail store a down payment and monthly payments, you can obtain an *installment loan* from a bank or credit union. When you borrow on an installment loan, you receive the full amount of the principal. You repay the principal in installments, usually monthly.

Many lenders calculate payments so that each payment is the same amount. This payment method is called the *level payment plan*. From each payment, the interest due for that month is deducted. The payment amount remaining after deducting the interest is applied to the principal.

If the interest rate on the loan is 1.5% a month, this rate is equal to 18% a year ( $1.5 \times 12 = 18$ ). Sometimes a service charge is added to the cost of the loan.

Below is a schedule of payments on a one-year, \$500 loan at 18%. The loan was repaid in 12 equal monthly payments of \$45.84.

| Loan Repayment Schedule |                 |                  |                      |         |
|-------------------------|-----------------|------------------|----------------------|---------|
| Month                   | Monthly Payment | Interest Payment | Applied to Principal | Balance |
| 1                       | 45.84           | 7.50             | 38.34                | 461.66  |
| 2                       | 45.84           | 6.92             | 38.92                | 422.74  |
| 3                       | 45.84           | 6.34             | 39.50                | 383.25  |
| 4                       | 45.84           | 5.75             | 40.09                | 343.15  |
| 5                       | 45.84           | 5.15             | 40.69                | 302.46  |
| 6                       | 45.84           | 4.54             | 41.30                | 261.16  |
| 7                       | 45.84           | 3.92             | 41.92                | 219.24  |
| 8                       | 45.84           | 3.29             | 42.55                | 176.68  |
| 9                       | 45.84           | 2.65             | 43.19                | 133.50  |
| 10                      | 45.84           | 2.00             | 43.84                | 89.66   |
| 11                      | 45.84           | 1.34             | 44.50                | 45.16   |
| 12                      | 45.84           | 0.68             | 45.16                | 0.00    |
| Totals                  | 550.08          | 50.08            | 500.00               |         |

### BUSINESS TIP

There are many loan calculators on the Web. You enter the principal, annual interest rate, and time of the loan. What is returned to you is the amount of the level monthly payment. Search for "loan calculator."

### SPREADSHEET TIP

The spreadsheet function *PMT* lets you compute the monthly payment needed in a level payment loan. In Excel, the function for a \$500 loan for 1 year at 18% is  
 $=PMT(0.18/12,12,500,0)$   
 0.18/12 is the monthly interest rate. The number of months is 12. The principal is 500 and 0 means the monthly payment is made at the end of the month. A 1 would mean the monthly payment is made at the beginning of the month.

Notice that the interest paid in any month is the amount you get by multiplying the unpaid balance by the monthly interest rate. A loan that uses this method of allocating interest is called a *simple interest installment loan*.

### EXAMPLE 3

The Winstons borrowed \$500 on a one-year simple interest installment loan at 18% interest. The monthly payments were \$45.84. Find the amount of interest, amount applied to the principal, and the new balance for the first monthly payment.

#### SOLUTION

Calculate the monthly interest rate:  $18\% \div 12 = 1.5\%$

Multiply the principal by the monthly interest rate:  $\$500 \times 0.015 = \$7.50$

Subtract the interest from the monthly payment:  $\$45.84 - \$7.50 = \$38.34$

Subtract the amount applied to principal from the previous balance.

$\$500.00 - \$38.34 = \$461.66$  new balance

### ■ CHECK YOUR UNDERSTANDING

- E. Benito Diaz borrowed \$1,000 on a one-year simple interest installment loan at 15% interest. The monthly payments were \$90.26. Find the amount of interest, amount applied to the principal, and the new balance for the first monthly payment.
- F. Lillian Dish signed a \$2,500, 6-month simple interest installment loan at 18% interest. The monthly payments were \$438.81. Find the amount of interest, amount applied to the principal, and the new balance for the first two monthly payments.

### Wrap Up

Look back at the problem described at the start of this lesson. Darrel is going to have to borrow money to purchase a car. He can borrow the money from the auto dealer, buying the car on the installment plan. Or, he can borrow the money through an installment loan from another lender, such as a bank, credit union, or finance company. Since Darrel probably doesn't have other collateral for the loan, he will have to use the car he is buying as collateral. That means that if Darrel fails to make his loan payments, the lender can take back, or *repossess* the car.

## TEAM MEETING

With two other students, investigate the borrowing terms of lenders for car loans. Check out the interest rates and monthly payments they would charge for a four-year, \$15,000 auto loan. The lenders should include (a) an auto dealer, (b) a bank, (c) a credit union, and (d) a finance company.

Prepare a comparison chart that includes the following for each lender.

- interest rate
- monthly payments
- total payments
- finance charge

## EXERCISES

**Find the sum or difference.**

1.  $-\$2,500 + \$89.15$

3.  $\$650 - \$75$

2.  $\$159.95 + \$12.28$

4.  $\$1,079.34 - \$418.73$

**Find the product or quotient.**

5.  $\$2,450 \times 0.18$

7.  $\$157 \times 9$

9.  $\$81.60 \div \$4,800$

6.  $\$389.67 \times 2.5$

8.  $\$4,584 \div 6$

10.  $\$1,000 \div 10$

**Find the installment price and finance charge for each item.**

| Item                | Cash Price | Installment Terms                     |
|---------------------|------------|---------------------------------------|
| 11. Digital Camera  | \$1,500    | \$100 down; \$70.57 a mo. for 24 mos. |
| 12. Sleeper Sofa    | \$950      | \$50 down; \$51.99 a mo. for 20 mos.  |
| 13. Computer System | \$2,150    | \$225 down; \$228.40 a mo. for 9 mos. |

14. You buy an MP3 changer for a car's audio system for \$25 down and a total installment price of \$297.34. You pay \$30.26 per month. For how many months will you have to make payments?

15. A novelty watch that sells for \$60 cash may be bought for \$6 down and \$5.76 a month for 10 months. By what percent is the installment price greater than the cash price?

16. You can buy aluminum louvers for the rear window of your car for \$180 cash or pay \$45 down and the balance in 12 monthly payments of \$13.50. By what percent would your installment price be greater than the cash price?



**Find the monthly interest payment, amount applied to principal, and new balance for the first month for each simple interest installment loan.**

|     | Amount Financed | Number of Payments | Monthly Payment | Annual Interest Rate |
|-----|-----------------|--------------------|-----------------|----------------------|
| 17. | \$500           | 6                  | \$87.02         | 15%                  |
| 18. | \$1,200         | 6                  | \$207.06        | 12%                  |
| 19. | \$800           | 12                 | \$ 73.34        | 18%                  |

20. **CRITICAL THINKING** Look at the Loan Repayment Schedule chart. If the interest rate is 18% per year, why is the total of the interest payments less than \$90, or  $\$500 \times 0.18$ ?

A member of a credit union borrows \$920 on a simple interest installment loan at 12% agreeing to repay it in 12 equal monthly payments of \$81.74.

21. What was the total finance charge on the loan?
22. What was the interest paid for the first month?
23. What was the amount applied to principal at the end of the first month?
24. What was the new balance at the end of the first month?

Kay borrowed \$400 from a finance company on a simple interest installment loan and repaid it in 6 monthly payments of \$70.81. The finance charge rate was 21%.

25. What was the total finance charge on the loan?
26. What was the interest paid for the first month?
27. What was the amount applied to principal at the end of the first month?
28. What was the new balance at the end of the first month?
29. **DECISION MAKING** You can buy a flat panel computer screen for \$720 in cash or \$50 down and 12 monthly payments of \$60.47 on the installment plan from the dealer. You can also obtain a simple interest installment loan from another lender by signing a promissory note and using your car as collateral. The face of the note would be for \$720 and would be payable, along with interest at 12%, one year later. If you do not have the cash but want the screen now, which loan would be the best for you? Why?

## MIXED REVIEW

30.  $43,109 \times 150$
31.  $7,082 \div 1,000$
32.  $2\frac{2}{5} \times 5\frac{1}{8}$
33. What is  $36\frac{1}{2}\%$  as a decimal?
34. Find the simple interest on \$2,812 for 1 month at 9% annually.
35. The town of Glen Gary charges its residents an income tax of  $\frac{1}{2}\%$  of their taxable income. Julio Gonzalez lives in Glen Gary and has a taxable income of \$120,560. What is his income tax?
36. Tom Ridley invested \$10,000 in a certificate of deposit. He withdrew \$1,000 before the end of the certificate's term. The penalty for early withdrawal was 1 month's interest at 6% annual percentage rate. What was the amount of the penalty?
37. You have \$500 on deposit in a savings account that pays 6% annual interest compounded quarterly. What is the effective rate of interest, to the nearest tenth percent, if the money was on deposit for one year?
38. Ann Quinland bought a set of golf clubs on the installment plan for \$395. She paid \$45 down and the balance in equal monthly installments of \$25 each. How many months did it take Ann to pay for the set?

