## NAME

# Module 4 Solving Problems Using Linear Equations of One Variable <br> Lesson 2 Solving Consumer/Business Problems <br> Using Equations of One Variable 

## Solve.

1. Carlos earns $\$ 17.50$ per hour. How many hours did Carlos work if he earned $\$ 568.75$ ? 32.5 hours
2. A handyman charges $\$ 25$ for a service call, plus $\$ 30$ per hour. How many hours did the handyman work if his total charge was $\$ 92.50$ ?

### 2.25 hours

3. The sum of two consecutive integers is 47 . What are the two integers?

23 and 24
4. The sum of three consecutive odd integers is -33 . What are the three integers?
$-9,-11,-13$
5. A business must send $3 \%$ of its employees to a seminar. How many employees does a company have if it sends 15 employees?

500 employees
6. A company donates $4 \%$ of its profit to charity. What was the company's profit if it donated $\$ 2,020$ to charity?
$\$ 50,500$

## Journal

1. A student represented three consecutive odd integers as $n, n+1$, and $n+3$. Explain her mistake.
2. A student was given the problem, "The sum of two consecutive integers is 23 ." He wrote and solved the equation $x+x+1=23$. The student got $x=11$ as the solution, and stated that 10 and 11 are the integers. Explain his mistake.
3. Employees at a clothing store get a $20 \%$ discount on their purchases. To calculate what they will pay for a purchase, they can multiply the regular price by 0.8 . Explain why this method works.
4. The owner of a jewelry shop calculates the total price, including a $6 \%$ sales tax, by multiplying the regular price by 1.06 . Explain why this method works.
5. A store uses a $100 \%$ markup on all its goods. What does this mean?

## Cumulative Review

## Solve.

1. $3 x-4=17 \quad x=7$
2. $-13=11 x+9 \underline{x=-2}$
3. $2 x+9=15 \underline{x=3}$
4. $\frac{3}{4} x+7=1 \quad x=-8$
5. $9-4 x=6 \quad$| $x=\frac{3}{4}$ |
| :--- |
6. $x+x+x=4.5 \quad x=1.5$
7. $3-2 x=-9+2 x \underline{x}=3$
8. $4 x+3(x-2)=8 \quad x=2$
9. $\frac{1}{2}(12 x)=30 \quad x=5$
10. $25(x+2)=55 x$ x $=\frac{5}{3}$ or $1 \frac{2}{3}$

## Calculator Problems Using the Percent Key

A business must send $3 \%$ of its employees to a seminar. How many employees does a company have if it sends 15 employees?

To solve the problem above using a scientific calculator use the following keystrokes.


Step 1: press 1
Step 2: press 5
Step 3: press $\div$
Step 4: press 3
So, the company has 300 employees.

## Use a scientific calculator to solve the following problems.

1. Shontisha earns $6 \%$ commission selling cellular phones. Her commission last week was $\$ 94.26$. What was the amount of her sales?

The amount of Shontisha's sales was $\$ 1,571$.
3. A company donates $2 \%$ of its yearly profit to charity. The company's yearly profit is $\$ 64,000$. What amount did the company donate to charity?

The company donated \$1,280 to charity.
2. The original price of a $C D$ is $\$ 17.99$. A store is having a CD sale, each CD is $25 \%$ off. What is the cost of a CD, excluding tax?

The cost of one CD is $\$ 13.49$.
4. Taylor used a $15 \%$ off coupon to buy a jacket, she paid $\$ 59.50$. What was the price of the jacket before the discount?

The price of the jacket before the discount was \$70.00.

## Possible Journal Answers

1. Any two consecutive odd integers differ by two. She should have used $n, n+2$, and $n+4$.
2. The student wrote and solved the equation correctly. However, he forgot that $x$ represented the first of the two integers. The two integers are 11 and 12.
3. If $p$ represents the regular price of the item, the price after the discount can be represented by the expression $p-0.20 p$, which is equivalent to $0.8 p$.
4. If $p$ represents the regular price of the item, the price after tax is added can be represented by the expression $p+0.06 p$, which is equivalent to $1.06 p$.
5. A $100 \%$ markup means that the amount of the markup is the same as the wholesale cost. Therefore, the retail price is equal to twice the wholesale cost. The store doubles the wholesale cost to find the retail price.
